

JVC

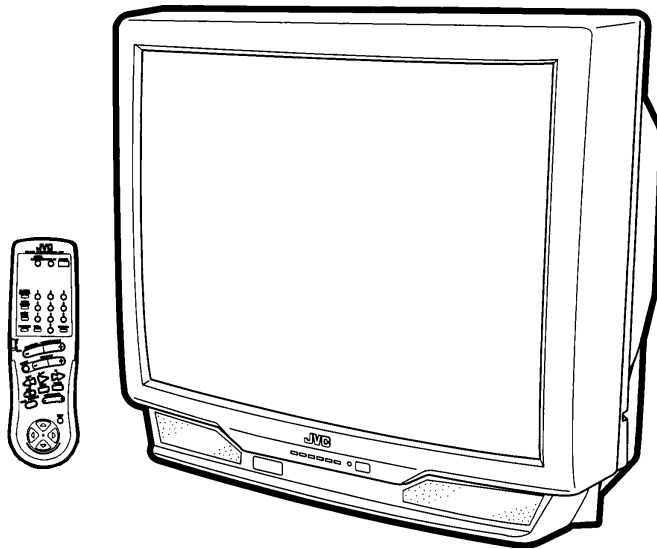
SERVICE MANUAL

COLOR TELEVISION

BASIC CHASSIS

GA

AV-29M201



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SPECIFICATIONS

| Items | Content |
|---|---|
| Dimensions (W × H × D) | 25-3/4" × 23-3/8" × 20-1/2" / 65.4cm × 59.1cm × 51.8cm |
| Mass | 67.8lbs / 30.8kg |
| TV System and Color system | |
| TV RF System | CCIR(M)&(N) |
| Color System | NTSC / PAL-M / PAL-N |
| Sound System | BTSC (Multi Channel Sound) |
| TV Receiving Channels and Frequency | |
| VL Band | (02~06) 55.25MHz~83.25MHz |
| VH Band | (07~13) 175.25MHz~211.25MHz |
| UHF Band | (14~69) 471.25MHz~801.25MHz |
| ATV Receiving Channels and Frequency | |
| Low Band | (02~06) |
| High Band | (07~13) |
| Mid Band | (14~22) |
| Super Band | (23~36) |
| Hyper Band | (37~64) |
| Ultra Band | (65~94, 100~125) |
| Sub Mid Band | (01, 96~99) |
| | (55.25MHz~799.25MHz) |
| TV/CATV Total Channel | 180 Channels |
| Intermediate Frequency | |
| Video IF Carrier | 45.75MHz |
| Sound IF Carrier | 41.25MHz (4.5MHz) |
| Color Sub Carrier | NTSC : 3.579545MHz PAL-M : 3.57561149MHz PAL-N : 3.58205625MHz |
| Power Input | Rated Voltage : 120V~240V AC, 50Hz/60Hz Operating Voltage : 90V~260V AC, 50Hz/60Hz |
| Power Consumption | 115W(max.), 85W(avg.) |
| Picture Tube | 27" (68cm) measured diagonally, Full Square |
| High Voltage | 29kV ± 1.3kV (at zero beam current) |
| Speaker | 2" × 4-3/4" / 5 × 12cm Oval type × 2 |
| Audio Power Output | 5W+5W |
| Input (1, 2) | Video : 1Vp-p 75Ω (RCA pin jack) Audio : 500mVrms (-4dBs), High Impedance (RCA pin jack) |
| Variable Audio Output | More then 0~1550mVrms (+6dBs) Low Impedance (400Hz when modulated 100%) (RCA pin jack) |
| Antenna terminal | 75Ω (VHF/UHF) Terminal, F-Type Connector |
| Accessories | Remote Control Unit RM-C765-1A(AAA/R03/UM-4 dry battery × 2) |

Design & specifications are subject to change without notice.

SAFETY PRECAUTIONS

- The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
- Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (\perp) side GND, the ISOLATED(NEUTRAL) : (⏏) side GND and EARTH : (\oplus) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.
- If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
- The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
- Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10k Ω 2W resistor to the anode button.
- When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

9. Isolation Check

(Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.

(. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

This method of test requires a test equipment not generally found in the service trade.

(2) Leakage Current Check

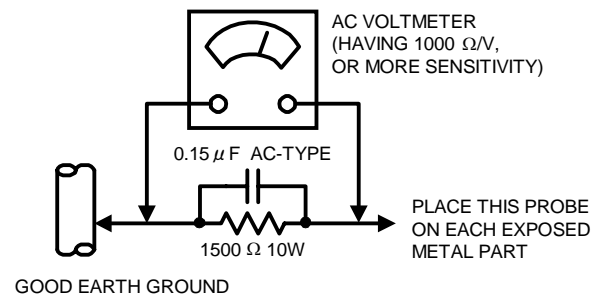
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

● Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500 Ω 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).

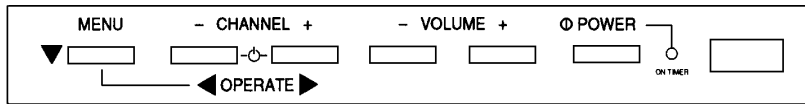


FEATURES

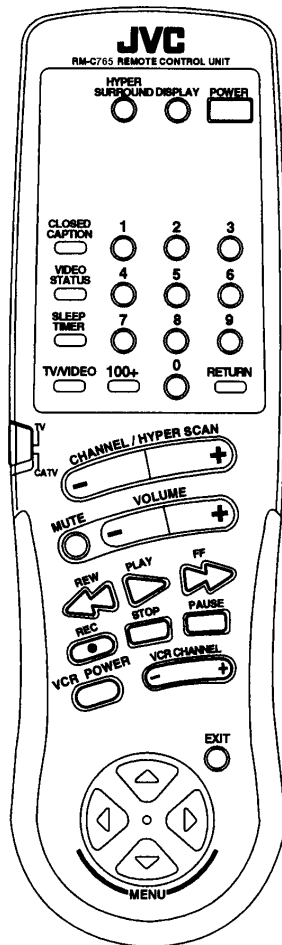
- New chassis design enables use of a main board with simplified circuitry.
- Provided with miniature tuner (TV/CATV).
- PLL synthesizer system TV/CATV totaling 180 channels.
- Multifunctional remote control permits picture adjustment.
- With AUDIO, VIDEO INPUT terminal.
- Variable audio output terminal.
- Adoption of the VIDEO STATUS function.
- Adoption of the ON/OFF TIMER function.
- With 75 Ω V/U in common (F-Type) ANT Terminal.
- SLEEP TIMER for setting in real time.
- Wide range voltage (90V~260V) AC power input.

FUNCTIONS

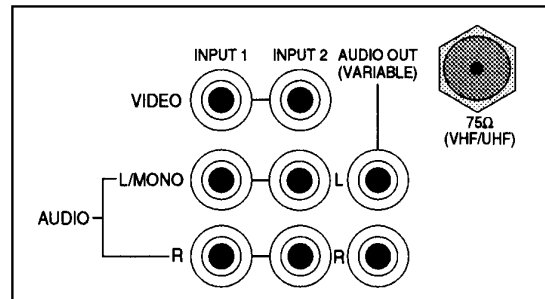
■ FRONT CONTROL



■ REMOTE CONTROL UNIT (RM-C765-1A)



■ REAR VIEW



SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Unplug the power supply cord.
 2. Remove the 7 screws marked (A) and 2 screws marked (B) as shown in Fig.1.
- * When reinstalling the rear cover, carefully push it inward after inserting the chassis into the rear cover groove.

REMOVING THE CHASSIS

- After removing the rear cover.
1. Slightly raise the both sides of the chassis by hand and remove the 2 claws under the both sides of the chassis from the front cabinet.
 2. Draw the chassis backward along the rail in the arrow direction marked (C) as shown in the Fig.1.
(If necessary, take off the wire clamp, connectors etc.)
- * When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT SOCKET PWB and the MAIN PWB.

REMOVING THE SPEAKER

- After removing the rear cover and chassis.
1. Remove the 2 screws marked (D) as shown in Fig.1.
 2. Follow the same steps when removing the other hand speaker.

CHECKING THE MAIN PW BOARD

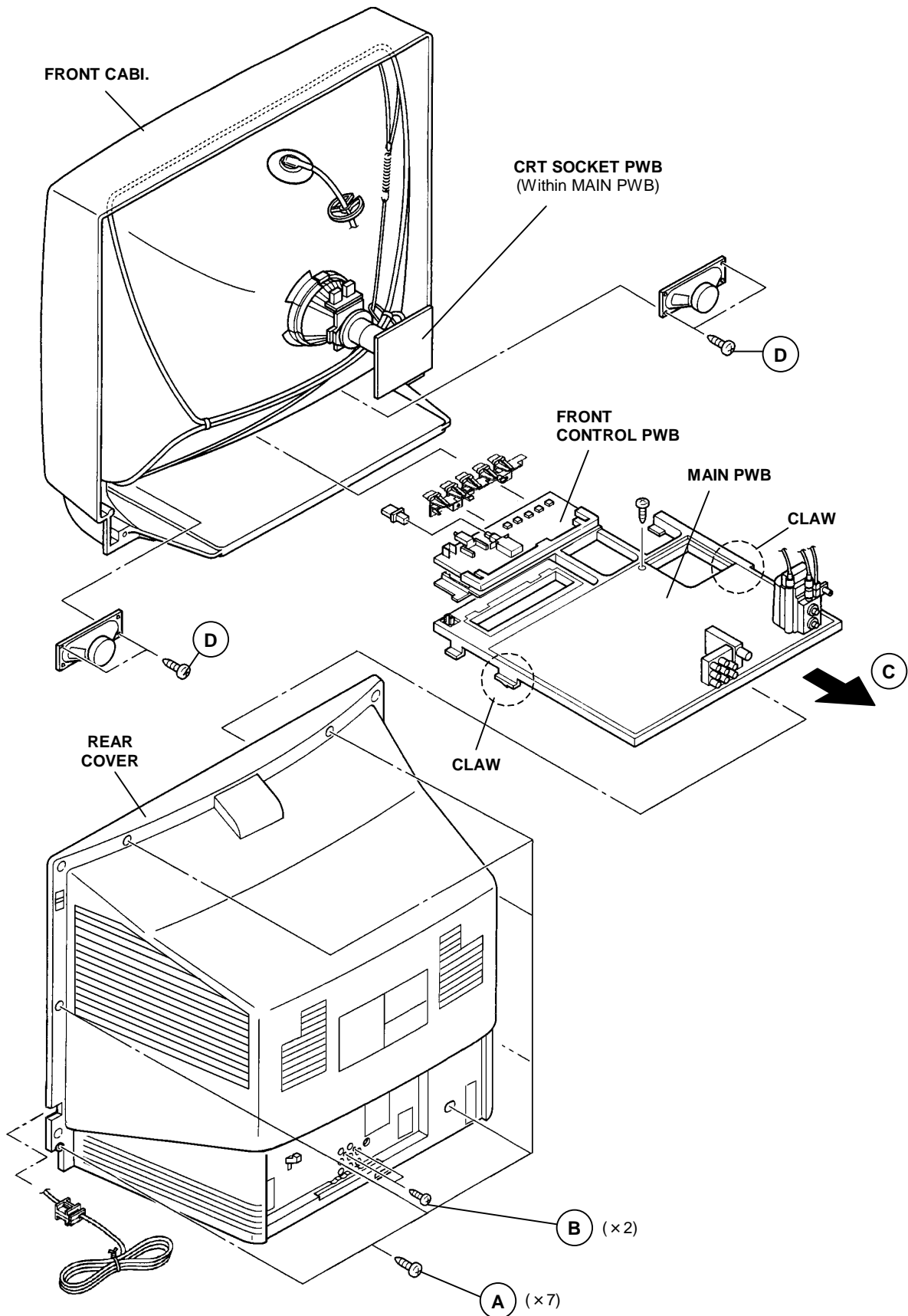
1. To check the back side of the MAIN PW Board.
 - 1) Pull out the chassis. (Refer to REMOVING THE CHASSIS).
 - 2) Erect the chassis vertically so that you can easily check the back side of the MAIN PW Board.

[CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PWB.
- Before turning on power, make sure that the CRT earth wire and other connectors are properly connected.

WIRE CLAMPING AND CABLE TYING

1. Be sure clamp the wire.
2. Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.



MEMORY IC REPLACEMENT

1. Memory IC

This model use a memory IC.

The memory IC stores data for proper operation of video and deflection circuits.

When replacing, be sure to use an IC containing this (initial value) data.

2. Memory IC replacement procedure

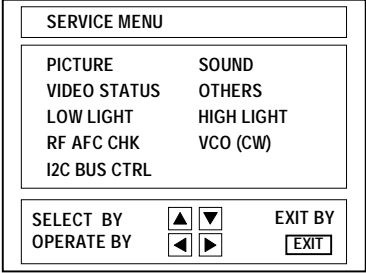
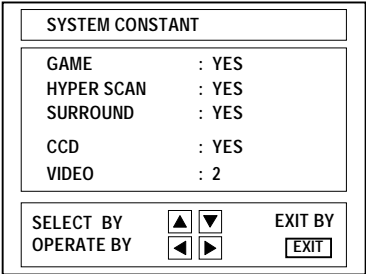
| PROCEDURE | SCREEN DISPLAY |
|---|--|
| (1) Power off Switch off the power and disconnect the power cord from the outlet. | |
| (2) Replace the memory IC. Be sure to use memory ICs written with the initial data values. | |
| (3) Power on Connect the power cord to the outlet and switch on the power. | |
| (4) System constant check and setting <ul style="list-style-type: none"> It must not adjust without signal. 1) Simultaneously press the DISPLAY key and VIDEO STATUS key of the remote control unit. 2) The SERVICE MENU screen of Fig.1 is displayed. 3) While the SERVICE MENU is displayed, again simultaneously press the DISPLAY and VIDEO STATUS keys to display the Fig.2 SYSTEM CONSTANT screen. 4) Refer to the SYSTEM CONSTANT table and check the setting items. Where these differ, select the setting item with the MENU UP / DOWN key and adjust the setting with the MENU LEFT / RIGHT keys. (The letters of the selected item are displayed in yellow.) 5) After adjusting, release the MENU LEFT / RIGHT key to store the setting value. 6) Press the EXIT key twice to return the normal screen. |  <p>Fig.1</p>  <p>Fig.2</p> |
| (5) Receive channel setting Refer to the OPERATING INSTRUCTIONS (USER' S GUIDE) and set the receive channels (Channels Preset) as described. | |
| (6) User settings Check the user setting items according to Table 2. Where these do not agree, refer to the OPERATING INSTRUCTIONS (USER' S GUIDE) and set the items as described. | |
| (7) SERVICE MENU setting Verify what to set in the SERVICE MENU, and set whatever is necessary. (Fig.1) refer to the SERVICE ADJUSTMENT for setting. | |

TABLE 1 (System Constant Setting)

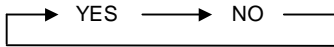
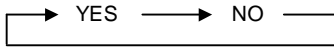
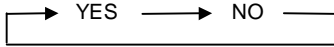
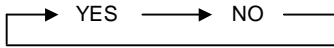
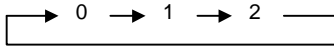
| Setting item | Setting content | Setting value |
|--------------|---|---------------|
| GAME |  YES → NO ← | YES |
| HYPER SCAN |  YES → NO ← | YES |
| SURROUND |  YES → NO ← | YES |
| CCD |  YES → NO ← | YES |
| VIDEO |  0 → 1 → 2 ← | 2 |

TABLE 2 (User setting value)

| Setting item | Setting value |
|------------------------|---------------------------------|
| 1. Setting of FUNCTION | |
| MAIN POWER | OFF |
| SUB POWER | ON |
| CHANNEL | CH 02 |
| CHANNEL PRESET | Refer to OPERATING INSTRUCTIONS |
| VOLUME | 10 |
| TV/VIDEO | TV |
| DISPLAY | OFF |
| SLEEP TIMER | 0 |
| VIDEO STATUS | STANDARD |
| CLOSED CAPTION | OFF (CC1/T1) |
| HYPER SURROUND | OFF |
| 2. Setting of MENU | |
| TINT | CENTER |
| COLOR | CENTER |
| PICTURE | CENTER |
| BRIGHT | CENTER |
| DETAIL | CENTER |
| BASS | CENTER |
| TREBLE | CENTER |
| BALANCE | CENTER |
| MTS | STEREO |
| TV SPEAKER | ON |
| SET CLOCK | Unnecessary to set |
| ON/OFF TIMER | NO |
| CHANNEL SUMMARY | Unnecessary to set |
| SET LOCK CODE | Unnecessary to set |
| AUTO TUNER SETUP | Unnecessary to set |
| TUNER MODE | AIR |
| NOISE MUTING | OFF |
| CLOSED CAPTION | OFF (CAPTION : CC1 TEXT : T1) |
| LANGUAGE | ENG. |

REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

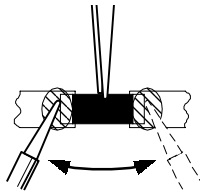
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

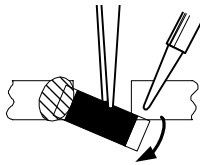
1. How to remove Chip parts

◆ Resistors, capacitors, etc

- (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

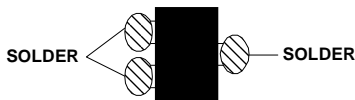


- (2) Shift with tweezers and remove the chip part.

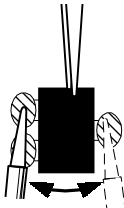


◆ Transistors, diodes, variable resistors, etc

- (1) Apply extra solder to each lead.



- (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

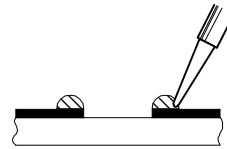


Note : After removing the part, remove remaining solder from the pattern.

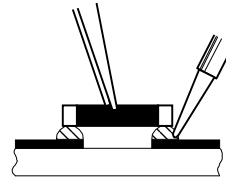
2. How to install Chip parts

◆ Resistors, capacitors, etc

- (1) Apply solder to the pattern as indicated in the figure.

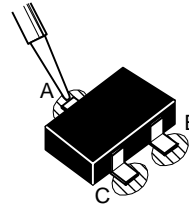


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

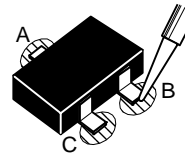


◆ Transistors, diodes, variable resistors, etc

- (1) Apply solder to the pattern as indicated in the figure.
- (2) Grasp the chip part with tweezers and place it on the solder.
- (3) First solder lead **A** as indicated in the figure.



- (4) Then solder leads **B** and **C**.



SERVICE ADJUSTMENTS

ADJUSTMENT PREPARATION:

1. You can make the necessary adjustments for this unit with either the remote control unit or with the adjustment equipment and parts as given below.
2. Adjustment with the remote control unit is made on the basis of the initial setting values, however, the new setting values which set the screen to its optimum condition may differ from the initial settings.
3. Make sure that AC power is turned on correctly.
4. Turn on the power for the set and test equipment before use, and start the adjustment procedures after waiting at least 30 minutes.
5. Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
6. Never touch any adjustment parts which are not specified in the list for this adjustment-variable resistors, transformers, condensers, etc.
7. Presetting before adjustment.

Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit.

| | |
|--------------------------------------|--------|
| VIDEO STATUS | NORMAL |
| TINT, COLOR, PICTURE, BRIGHT, DETAIL | CENTER |
| BASS, TREBLE, BALANCE | CENTER |
| HYPER SURROUND | OFF |

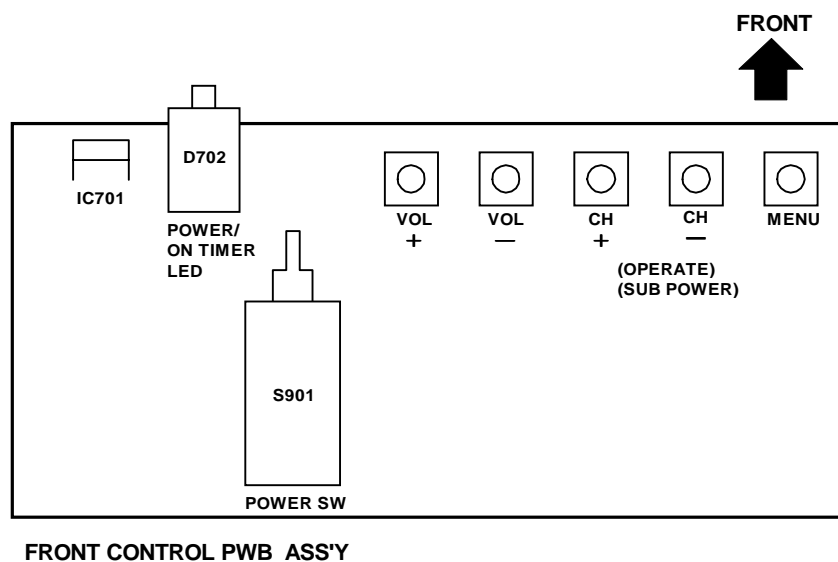
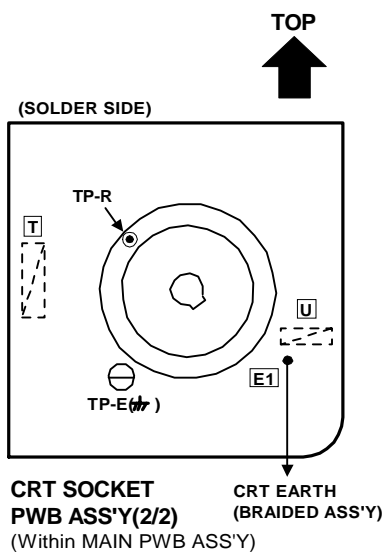
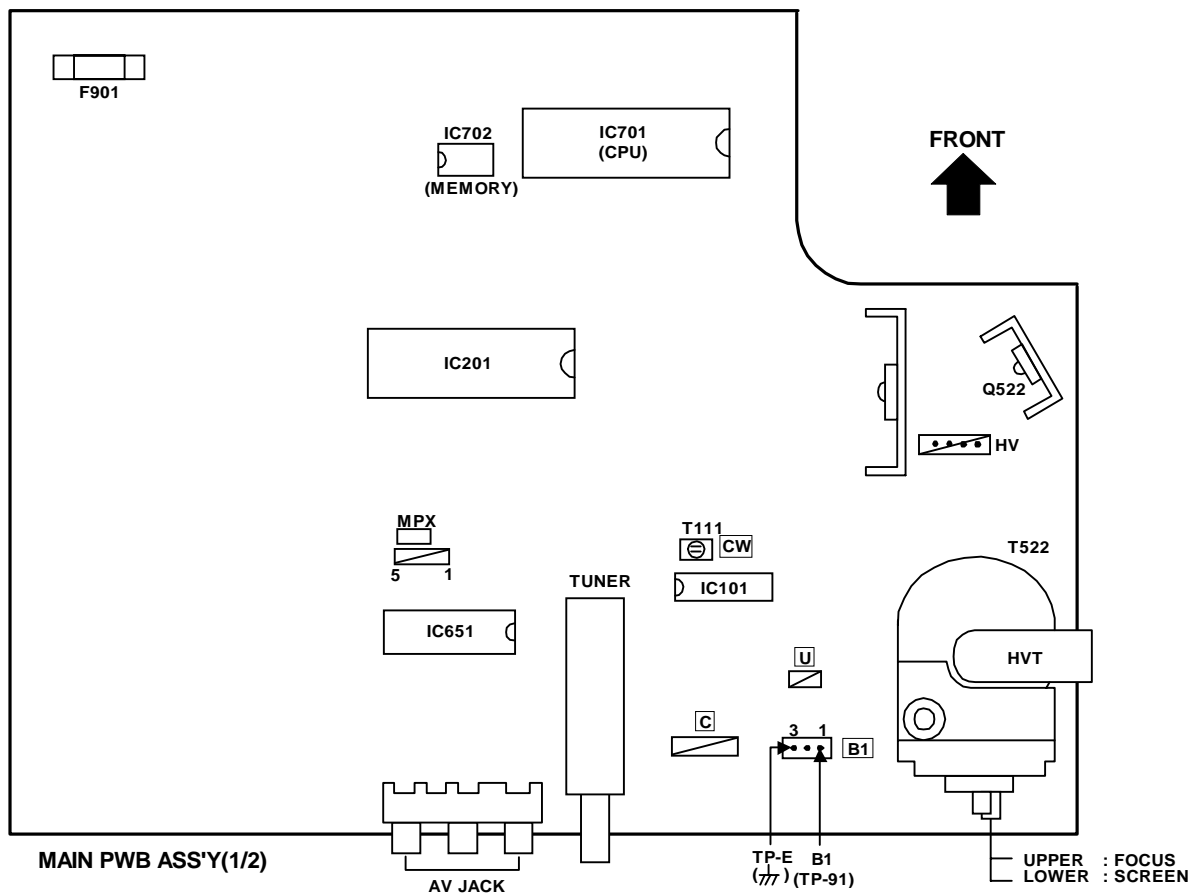
ADJUSTMENT EQUIPMENT

1. DC voltmeter(or digital voltmeter)
2. Oscilloscope
3. Signal generator (Pattern generator) [NTSC] [PAL-M] [PAL-N]
4. Remote control unit
5. TV audio multiplex signal generator
6. Frequency counter

ADJUSTMENT ITEMS

- Check of B1 POWER SUPPLY
- IF VCO adjustment
- RF AGC adjustment
- FOCUS adjustment
- DEFLECTION adjustment
 - V. HEIGHT, V. POSITION, V. LIN., V S CR adjustment
 - H. POSITION adjustment
- VIDEO / CHROMA adjustment
 - WHITE BALANCE (Low light) adjustment
 - WHITE BALANCE (High light) adjustment
 - SUB BRIGHT adjustment
 - SUB CONTRAST adjustment
 - SUB COLOR adjustment
 - SUB TINT adjustment
- MTS circuit adjustment
 - INPUT LEVEL check
 - STEREO VCO adjustment
 - SAP VCO adjustment
 - FILTER check
 - SEPARATION adjustment

ADJUSTMENT LOCATIONS



BASIC OPERATION OF SERVICE MENU

1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

2. SERVICE MENU ITEMS

In general, basic setting(adjustments) items or verifications are performed in the SERVICE MENU.

- (1) PICTURE This sets the setting values (adjustment values) of the VIDEO/CHROMA and DEFLECTION circuits.
- (2) SOUND This sets the setting values (adjustment values) of the AUDIO circuit.
- (3) VIDEO STATUS..... This is used when the THEATER and GAME MODE is adjusted.
- (4) OTHERS..... This is used when the OTHERS MODE is adjusted.
- (5) LOW LIGHT This sets the setting values (adjustment values) of the WHITE BALANCE circuit.
- (6) HIGH LIGHT This sets the setting values (adjustment values) of the WHITE BALANCE circuit.
- (7) RF AFC CHK This is used when the IF VCO is adjusted. **[Do not adjust]**
- (8) VCO (CW) This is used when the IF VCO is adjusted.
- (9) I²C BUS CTRL This is used when ON/OFF of the I²C BUS CTRL is set. **[Fixed ON]**

3. Basic Operations of the SERVICE MENU

(1) How to enter the SERVICE MENU.

Press the DISPLAY key and VIDEO STATUS key of the remote control unit at the same time to enter the SERVICE MENU screen ① shown in figure page later.

(2) SERVICE MENU screen selection

Press the UP / DOWN key of the MENU to select any of the following items.

(The letters of the selected items are displayed in yellow.)

- PICTURE
- SOUND
- VIDEO STATUS
- OTHERS
- LOW LIGHT
- HIGH LIGHT
- RF AFC CHK
- VCO (CW)
- I²C BUS CTRL

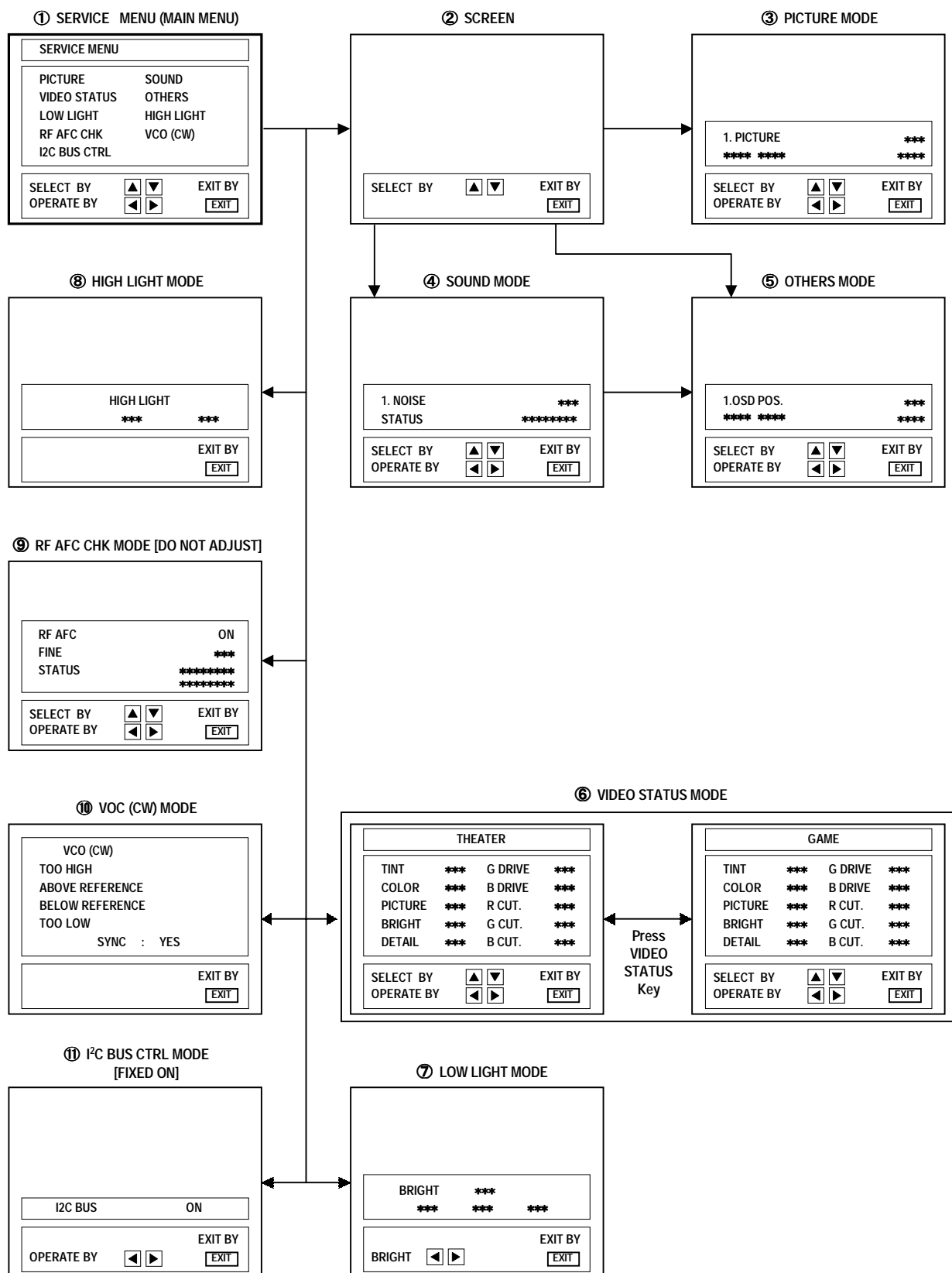
(3) Enter the any setting (adjustment) mode

● PICTURE, SOUND and OTHERS mode

- 1) If select any of PICTURE, SOUND or OTHERS items, and the LEFT / RIGHT key is pressed from SERVICE MENU (MAIN MENU), the screen ② will be displayed as shown in figure page later.
- 2) Then the UP / DOWN key is pressed, the PICTURE mode screen ③ or the SOUND mode screen ④ or the OTHERS mode screen ⑤ is displayed, and the PICTURE, SOUND or OTHERS setting can be performed.

● VIDEO STATUS, LOW LIGHT, HIGH LIGHT, RF AFC CHK, VCO (CW) and I²C BUS CTRL mode

- 1) If select any of VIDEO STATUS / LOW LIGHT / HIGH LIGHT / RF AFC CHK / VCO (CW) / I²C BUS CTRL items, and the LEFT / RIGHT key is pressed from SERVICE MENU (MAIN MENU), the screens ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ will be displayed as shown in figure page later.
- 2) Then the settings or verifications can be performed.

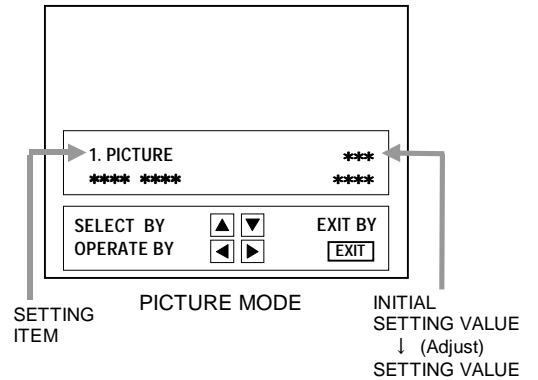


(4) Setting method

- 1) UP / DOWN key of the MENU
Select the SETTING ITEM.
- 2) LEFT / RIGHT key of the MENU
Setting(adjust) the SETTING VALUE of the SETTING ITEM.
When the key is released the SETTING VALUE will be stored (memorized).
- 3) EXIT key
Returns to the previous screen.

[NOTE] (PICTURE MODE ONLY)

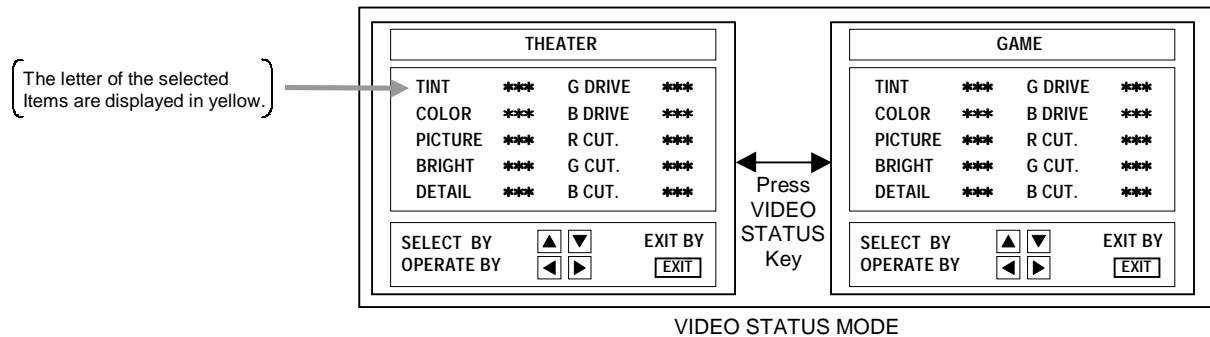
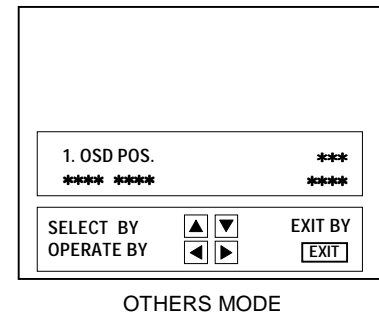
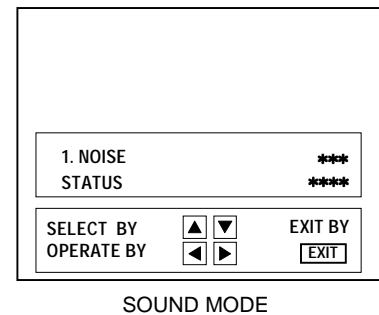
When the INITIAL SETTING VALUE is turned to yellow, you can adjust the values but you cannot adjust the values when it is turned to red (because the signal conditions, etc. are not met.)

**(5) Releasing SERVICE MENU**

- 1) After returning to the SERVICE MENU upon completion of the setting (adjustment) work, press the EXIT key again.

★ The settings for LOW LIGHT and HIGH LIGHT are described in the WHITE BALANCE page of ADJUSTMENT.

★ The setting for VCO(CW) are described in the IF VCO page of ADJUSTMENT.



INITIAL SETTING VALUE OF SERVICE MENU

1. Adjustment of the SERVICE MENU is made on the basis of the initial setting values ; however, the new setting values which set the screen in its optimum condition may differ from the initial setting.
2. Do not change the initial Setting Values of the Setting (Adjustment) items not listed in “ADJUSTMENT”.

● PICTURE MODE

- ✧ The four setting items in the video mode No.8 EXT PIC., No.9 EXT BRI., No.10 EXT COL., and No.11 EXT TINT are linked to the items in the TV MODE No.1 PICTURE, No.2 BRIGHT, No.5 COL.NTSC and No.6 TINT, respectively. When the setting items in the TV mode are adjusted, the values in the setting items in the video mode are revised automatically to the same values in the TV mode.(The initial setting values given in () are off-set values.)
- ✧ When the four items (No.8, 9, 10 and 11) are adjusted in the video mode, the setting values in each item are revised independently.

| No. | Setting (Adjustment) item | Variable range | Initial setting value |
|-----|---------------------------|----------------|-----------------------|
| 1. | PICTURE | 0~127 | 60 |
| 2. | BRIGHT | 0~127 | 64 |
| 3. | COL. PALM | 0~127 | 80 |
| 4. | COL. PALN | 0~127 | 80 |
| 5. | COL. NTSC | 0~127 | 95 |
| 6. | TINT | 0~127 | 65 |
| 7. | TV DTL | 0~63 | 33 |
| 8. | EXT PIC. | ±25 | (0) |
| 9. | EXT BRI. | ±25 | (0) |
| 10. | EXT COL. | ±25 | (+4) |
| 11. | EXT TINT | ±25 | (+3) |
| 12. | EXT DTL | 0~63 | 30 |
| 13. | P/N KILL | 0 / 1 | 0 |
| 14. | Y S CONT | 0~31 | 31 |
| 15. | TV Y-DL | 0~4 | 1 |
| 16. | EXT Y-DL | 0~4 | 1 |
| 17. | WPL SW | 0 / 1 | 0 |
| 18. | Y GAMMA | 0 / 1 | 0 |
| 19. | P/N G P. | 0 / 1 | 0 |
| 20. | COL. L SW | 0 / 1 | 1 |
| 21. | COL. LMT. | 0~3 | 1 |
| 22. | PN C. ATT | 0~3 | 1 |
| 23. | OFST. SW | 0 / 1 | 0 |
| 24. | OFST. B-Y | 0~15 | 8 |
| 25. | OFST. R-Y | 0~15 | 8 |
| 26. | C-TOF SW | 0 / 1 | 1 |
| 27. | TV T FO | 0~3 | 1 |
| 28. | TV T Q | 0~3 | 0 |
| 29. | EXT T FO | 0~3 | 0 |
| 30. | EXT T Q | 0~3 | 0 |
| 31. | C-TRAP | 0 / 1 | 0 |
| 32. | C-TR. FO | 0~3 | 2 |
| 33. | C-TRAP Q | 0~3 | 1 |
| 34. | FIX B/W | 0 / 1 | 0 |
| 35. | APA P. FO | 0~3 | 2 |
| 36. | DC TRAN. | 0~7 | 4 |
| 37. | B. ST. SW | 0 / 1 | 0 |
| 38. | B. ST. PO. | 0~7 | 0 |
| 39. | ABL GAIN | 0~7 | 4 |
| 40. | ABL PO. | 0~7 | 0 |
| 41. | HALF T. | 0~2 | 1 |
| 42. | DRV G SW | 0 / 1 | 0 |
| 43. | NT. COMB | 0 / 1 | 1 |
| 44. | COIN DET | 0~3 | 3 |
| 45. | NOISE L. | 0~3 | 3 |
| 46. | VCD MODE | 0 / 1 | 0 |
| 47. | V AGC SP | 0 / 1 | 0 |
| 48. | H POS. 50 | 0~31 | 6 |
| 49. | H BLK. 50 | 0~7 | 0 |
| 50. | V POS. 50 | 0~7 | 2 |

● PICTURE MODE

| No. | Setting (Adjustment) item | Variable range | Initial setting value |
|-----|---------------------------|----------------|-----------------------|
| 51. | V SIZE50 | 0~127 | 71 |
| 52. | V S CR50 | 0~127 | 83 |
| 53. | V LIN. 50 | 0~31 | 4 |
| 54. | H POS. 60 | 0~31 | 10 |
| 55. | H BLK. 60 | 0~7 | 0 |
| 56. | V POS. 60 | 0~7 | 0 |
| 57. | V SIZE60 | 0~127 | 72 |
| 58. | V S CR60 | 0~127 | 99 |
| 59. | V LIN. 60 | 0~31 | 3 |
| 60. | RF AGC | 0~255 | 160 |

● SOUND MODE

| No. | Setting (Adjustment) item | Variable range | Initial setting value |
|-----|---------------------------|----------------|-----------------------|
| 1. | NOISE | 0 / 1 | 1 |
| 2. | IN LEVEL | 0~63 | 50 |
| 3. | FH MON. | 0 / 1 | 0 |
| 4. | ST VCO | 0~63 | 25 |
| 5. | PILOT | 0 / 1 | 0 |
| 6. | FILTER | 0~63 | 30 |
| 7. | LOW SEP. | 0~63 | 22 |
| 8. | HI SEP. | 0~63 | 23 |
| 9. | 5FH MON. | 0 / 1 | 0 |
| 10. | SAP VCO | 0~63 | 26 |
| 11. | IN GAIN | 0 / 1 | 0 |
| 12. | FIL. OFF. | 0~10 | 0 |

● VIDEO STATUS MODE

| Setting (Adjustment) item | Variable range | Initial setting value | |
|---------------------------|----------------|-----------------------|------|
| | | THEATER | GAME |
| TINT | ±20 | 0 | 0 |
| COLOR | ±20 | -3 | -3 |
| PICTURE | -30~ +20 | -10 | -10 |
| BRIGHT | ±20 | 0 | 0 |
| DETAIL | ±15 | 0 | -5 |
| G DRIVE | -99~ +50 | -22 | 0 |
| B DRIVE | -99~ +50 | -54 | 0 |
| R CUT. | ±10 | 0 | 0 |
| G CUT. | ±10 | 0 | 0 |
| B CUT. | ±10 | 0 | 0 |

● OTHERS MODE

| No. | Setting (Adjustment) item | Variable range | Initial setting value |
|-----|---------------------------|----------------|-----------------------|
| 1. | OSD POS. | 0~31 | 7 |
| 2. | LOCK DET | 0 / 1 | 0 |
| 3. | SD SEL. | 0~2 | 0 |
| 4. | H-CK SW | 0 / 1 | 0 |

● LOW LIGHT MODE

| Setting (Adjustment) item | Variable range | Initial setting value |
|---------------------------|----------------|-----------------------|
| R CUTOFF | 0~255 | 20 |
| G CUTOFF | 0~255 | 20 |
| B CUTOFF | 0~255 | 20 |

● HIGH LIGHT MODE

| Setting (Adjustment) item | Variable range | Initial setting value |
|---------------------------|----------------|-----------------------|
| G DRIVE | 0~255 | 128 |
| B DRIVE | 0~255 | 128 |

● RF AFC CHK MODE

| Setting (Adjustment) item | Variable range | Initial setting value |
|---------------------------|---------------------|---|
| RF AFC FINE | ON / OFF -77~+77 | ON $\pm \times \times$ DO NOT ADJUST |

● I²C BUS CTRL MODE

| Setting (Adjustment) item | Variable range | Initial setting value |
|---------------------------|----------------|-----------------------|
| I ² C BUS | ON / OFF | [Fixed ON] |

■ ADJUSTMENTS

B1 POWER SUPPLY

| Item | Measuring instrument | Test point | Adjustment item | Description |
|--------------------------|----------------------|--|-----------------|---|
| Check of B1 POWER SUPPLY | DC Voltmeter | B1 (B1 Connector 1 pin) (TP-91) TP-E(\downarrow) (B1 Connector 3 pin) | | <ol style="list-style-type: none"> 1. Receive a black and white signal (color off). (NTSC) 2. Connect the DC voltmeter to B1 connector 1 pin (TP-91) and TP-E(\downarrow) (B1 connector 3 pin). 3. Confirm that the voltage is DC129.5V ± 2.5 V. |

ADJUSTMENT OF IF VCO

| Item | Measuring instrument | Test point | Adjustment item | Description |
|-------------------|----------------------|------------|--------------------------------------|--|
| IF VCO adjustment | Signal generator | | CW TRANSF. (T111) [VCO (CW)] mode | <p>Under normal conditions, no adjustment is required. and it must not adjust without signal.</p> <ol style="list-style-type: none"> 1. Receive a NTSC broadcast. (use channels without offset frequency). 2. Select the VCO(CW) mode from the SERVICE MENU. 3. Confirm the color change (yellow) from "TOO HIGH" to "TOO LOW" by CW TRANSF. and "SYNC : YES" being shown on the screen. Then, adjust CW TRANSF. until "BELOW REFERENCE" mark turns yellow and confirm again " SYNC : YES" being shown on the screen. |

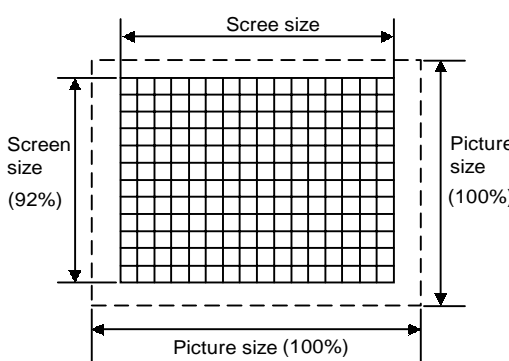
ADJUSTMENT OF RF AGC

| | | | | |
|-------------------|--|--|--------------|---|
| RF AGC adjustment | | | No.60 RF AGC | <ol style="list-style-type: none"> 1. Receive a broadcast. 2. Select "No.60 RF AGC" of the PICTURE mode in SERVICE MENU. 3. Press the MUTING key and turn off color. 4. With the MENU LEFT key, get noise in the screen picture. (0 side of setting value) 5. Press the MENU RIGHT key and stop when noise disappears from the screen. 6. Change to other channels and make sure that there is no irregularity. 7. Press the MUTING key and get color out. |
|-------------------|--|--|--------------|---|

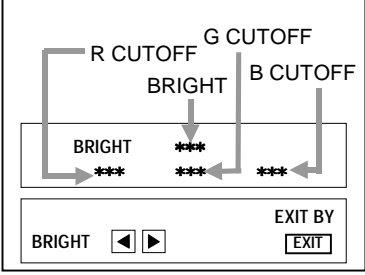
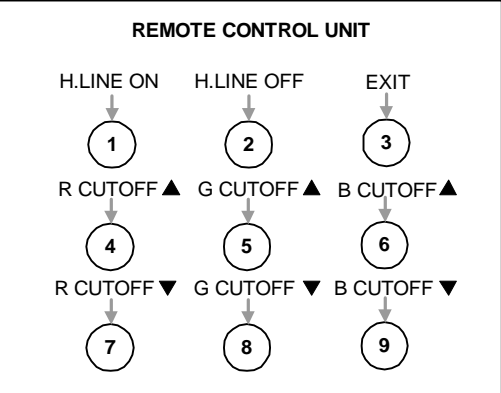
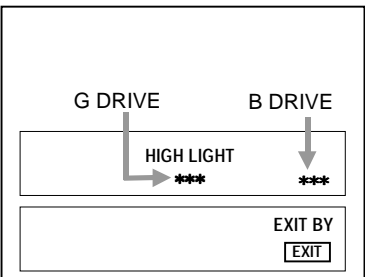
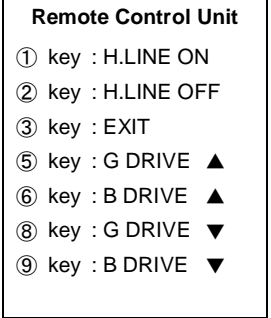
ADJUSTMENT OF FOCUS

| | | | | |
|------------------|------------------|--|-------------------|---|
| FOCUS adjustment | Signal generator | | FOCUS VR [In HVT] | <ol style="list-style-type: none"> 1. Receive a crosshatch signal. 2. While looking at the screen, adjust FOCUS VR so that the vertical and horizontal lines will be clear and in fine detail. 3. Make sure that the picture is in focus even when the screen gets darkened. |
|------------------|------------------|--|-------------------|---|

ADJUSTMENT OF DEFLECTION CIRCUIT

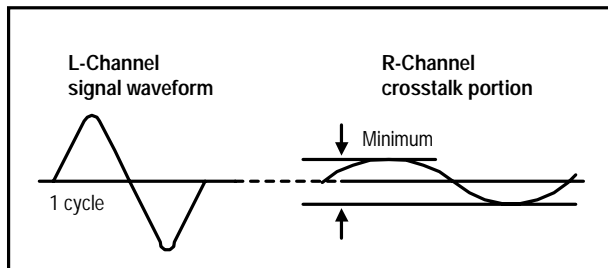
| Item | Measuring instrument | Test point | Adjustment item | Description |
|--|----------------------|------------|--|--|
| V. HEIGHT, V. POSITION, V. LIN. V. S CR adjustment | Signal generator | | <p>No.56 V POS. 60 No.57 V SIZE 60 No.58 V S CR60 No.59 V. LIN. 60</p> <p>No.50 V POS.50 No.51 V SIZE 50 No.52 V S CR50 No.53 V LIN.50</p> | <p>[60Hz]</p> <ol style="list-style-type: none"> 1. Receive a crosshatch signal.(NTSC or PAL-M) 2. Confirm that the value of PICTURE MODE “No.56 V POS. 60” is 0. 3. Confirm the initial setting value of the “No.57 V SIZE 60” , No.58 V S CR60” and “No.59 V LIN. 60” . 4. Adjust the vertical screen size to 92% with the PICTURE MODE “No.57 V SIZE60” . 5. Adjust the PICTURE MODE “No.59 L LIN. 60” and “No.58 V S CR60” to get the best vertical linearity. <p>NOTE :</p> <ol style="list-style-type: none"> 1. The PICTURE MODE “No.56 V POS. 60” is fixed on value 0. 2. Bottom of screen is to be located within the 85%~95% range. <p>[50Hz]</p> <ol style="list-style-type: none"> 1. Receive a crosshatch signal. (PAL-N) 2. Confirm the initial setting value of the “No.50 V POS.50”, “No.51 V SIZE 50” , “No.52 V S CR 50” and “No.53 V LIN.50”. 3. Adjust the vertical screen size to 92% with the PICTURE MODE “No.51 V SIZE50”. 4. Adjust the PICTURE MODE “No.53 V LIN.50” and “No.52 V S CR50” to get the best vertical linearity. 5. Adjust the PICTURE MODE “No.50 V POS.50” so that the vertical center line comes close to the CRT vertical center as much as possible. <p>● Readjust V SIZE, V LIN., V S CR if necessary.</p> <p>NOTE :</p> <ol style="list-style-type: none"> 1. Bottom of screen is to be located within the 85%~95% range. |
|  | | | | |
| H. POSITION adjustment | Signal generator | | <p>No.54 H POS.60</p> <p>No.48 H POS.50</p> | <p>[60Hz]</p> <ol style="list-style-type: none"> 1. Receive a crosshatch signal. (NTSC or PAL-M) 2. Select the “No.54 H POS. 60” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.54 H POS. 60”. 4. Adjust the “No.54 H POS. 60” until the screen will be horizontally centered. <p>[50Hz]</p> <ol style="list-style-type: none"> 1. Receive a crosshatch signal. (PAL-N) 2. Select the “No.48 H POS. 50” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.48 H POS. 50”. 4. Adjust the “No.48 H POS. 50” until the screen will be horizontally centered. |

ADJUSTMENT OF VIDEO / CHROMA CIRCUIT

| Item | Measuring instrument | Test point | Adjustment item | Description |
|---|---|------------|--|--|
| WHITE BALANCE (Low Light) adjustment | Signal Generator Remote control unit | | BRIGHT R CUTOFF G CUTOFF B CUTOFF SCREEN VR | <ol style="list-style-type: none"> 1. Receive a black-and-white signal.(Color off) 2. Select the 【LOW LIGHT】 MODE from the SERVICE MENU. 3. Set the initial setting value of BRIGHT with the LEFT / RIGHT key of the remote control unit. 4. Set the initial setting value of R CUTOFF, G CUTOFF and B CUTOFF with the ④ to ⑨ key of the remote control unit. 5. Display a single horizontal line by pressing the ① key of the remote control unit. 6. Turn the screen VR all the way to the left. 7. Turn the screen VR gradually to the right from the left until either one of the red, blue or green colors appears faintly. 8. Adjust the two colors which did not appear until the single horizontal line that is displayed becomes white using the ④ to ⑨ keys of the remote control unit. 9. Turn the screen VR to where the single horizontal line glows faintly. 10. Press the ② key to return to the regular screen. <p>* The ③ EXIT key is the cancel key for the WHITE BALANCE.</p> |
| <div style="text-align: center;"> [LOW LIGHT] MODE </div>  <div style="text-align: center; margin-top: 20px;"> REMOTE CONTROL UNIT </div>  | | | | |
| WHITE BALANCE (High Light) adjustment | Signal Generator Remote control unit | | G DRIVE B DRIVE | <ol style="list-style-type: none"> 1. Receive a black and white signal (color off). (NTSC) 2. Select the HIGH LIGHT mode in the SERVICE MENU. 3. Confirm the initial setting value of "G DRIVE" and "B DRIVE". 4. Adjust the screen color to white with the ⑤, ⑥, ⑧ and ⑨ keys of the remote control unit. |
| <div style="text-align: center;"> [HIGH LIGHT] MODE </div>  <div style="text-align: center; margin-top: 20px;"> Remote Control Unit </div>  | | | | |

ADJUSTMENT OF MTS CIRCUIT

| Item | Measuring instrument | Test point | Adjustment part | Description |
|---------------------------|---|---|-------------------------------------|---|
| MTS INPUT LEVEL check | | | No.2 IN LEVEL | <ol style="list-style-type: none"> 1. Select the "No.2 IN LEVEL" of the SOUND mode in SERVICE MENU. 2. Verify that the "No.2 IN LEVEL" is set at its initial setting value. |
| MTS STEREO VCO adjustment | Signal generator Frequency counter | R OUT [AUDIO OUT] | No.3 FH MON No.4 ST VCO | <ol style="list-style-type: none"> 1. Receive a NTSC RF signal (non modulated sound signal) from the antenna terminal. 2. Select the "No.3 FH MON" of SOUND mode in SERVICE MENU, change the setting value from 0 to 1. 3. Connect the frequency connector to R OUT RCA pin of the AUDIO OUT. 4. Select the "No.4 ST VCO". 5. Confirm the initial setting value of the "No.4 ST VCO". 6. Adjust the "No.4 ST VCO" so that the frequency counter will display $15.73\text{kHz} \pm 0.1\text{kHz}$. 7. Select the "No.3 FH MON" of the SOUND mode, and reset the setting value from 1 to 0. |
| MTS SAP VCO adjustment | Signal generator Frequency counter | <div>MPX Connector</div> <div>4 pin SDA</div> <div>3 pin GND</div> <div>MAIN PWB</div> <div>R OUT [AUDIO OUT]</div> | No.9 5FH MON. No.10 SAP VCO. | <ol style="list-style-type: none"> 1. Receive a NTSC RF signal (non modulated sound signal) from the antenna terminal. 2. Connect between pin 4 of MPX connector and GND (pin 3 of MPX connector) through $1\text{M}\Omega$ resistor. 3. Select the "No.9 5FH MON." of the SOUND mode in SERVICE MENU, and reset the setting value from 0 to 1. 4. Connect the frequency connector to R OUT RCA pin of the AUDIO OUT. 5. Select the "No.10 SAP VCO". 6. Confirm the initial setting value of "No.10 SAP VCO". 7. Adjust the "No.10 SAP VCO" so that the frequency connector will display $78.67\text{kHz} \pm 0.5\text{kHz}$. 8. Select the "No.9 5FH MON." of the SOUND mode, and reset the setting value from 1 to 0. |
| MTS FILTER check | | | No.6 FILTER | <ol style="list-style-type: none"> 1. Select the "No.6 FLTER" of the SOUND mode in SERVICE MENU. 2. Verify that the "No.6 FLTER" is set at its initial setting value. |
| MTS SEPARATION adjustment | TV audio multiplex signal generator Oscilloscope | L OUT R OUT [AUDIO OUT] | No.7 LOW SEP. No.8 HI SEP. | <ol style="list-style-type: none"> 1. Input a stereo L signal (300Hz) from the TV Audio multiplex signal generator to the antenna terminal. (NTSC) 2. Connect an oscilloscope to L OUT RCA pin of the AUDIO OUT, and display one cycle portion of the 300Hz signal. 3. Change the connection of the oscilloscope to R OUT RCA pin of the AUDIO OUT, and enlarge the voltage axis. 4. Select the "No.7 LOW SEP." of the SOUND mode in SERVICE MENU. 5. Confirm the initial setting value of the "No.7 LOW SEP.". 6. Adjust the "No.7 LOW SEP." so that the stroke element of the 300Hz signal will become minimum. 7. Change the signal to 3kHz, and similarly adjust the "No.8 HI SEP.". |



HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. HIGH VOLTAGE HOLD DOWN CIRCUIT

After repairing the high voltage hold down circuit shown in Fig. 1.

This circuit shall be checked to operate correctly.

2. CHECKING OF THE HIGH VOLTAGE HOLD DOWN CIRCUIT

- (1) Turn the POWER SW ON.
- (2) As shown in Fig.2, set the resistor (between X connector 1 & 3).
- (3) Make sure that the screen picture disappears.
- (4) Temporarily unplug the power cord.
- (5) Remove the resistor (between X connector 1 & 3).
- (6) Again plug the power cord, make sure that the normal picture is displayed on the screen.

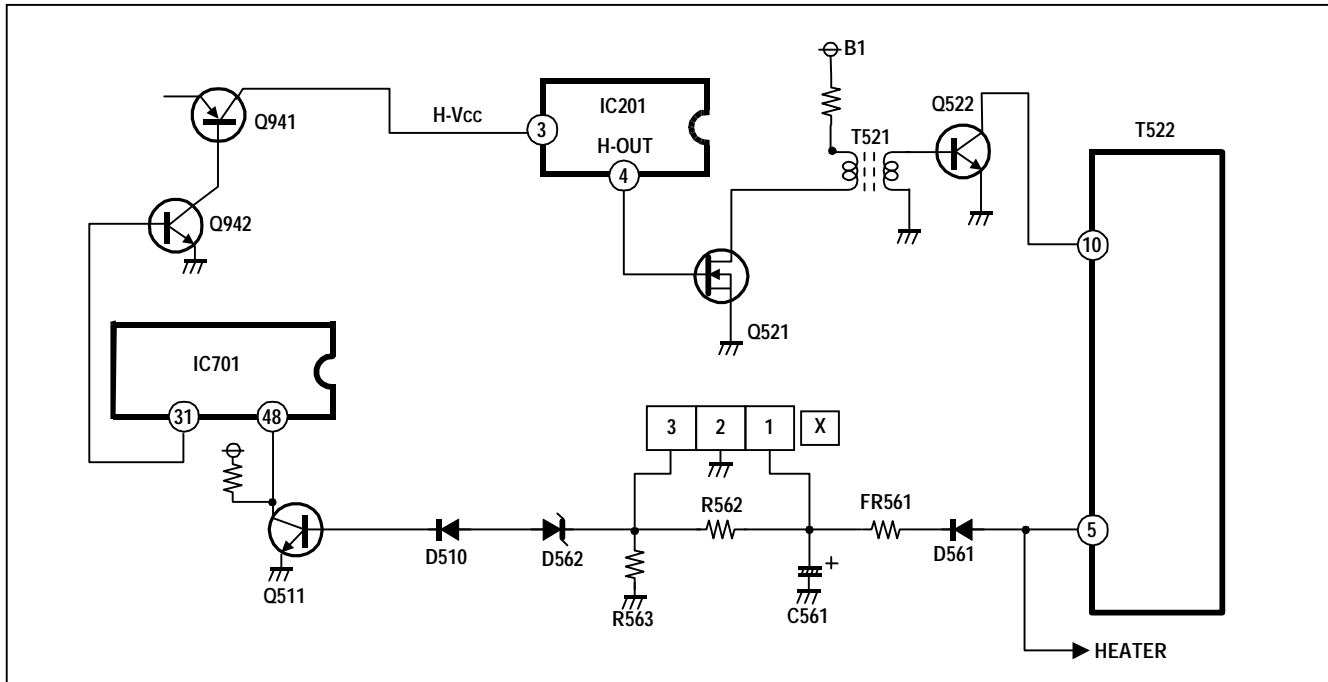


Fig. 1

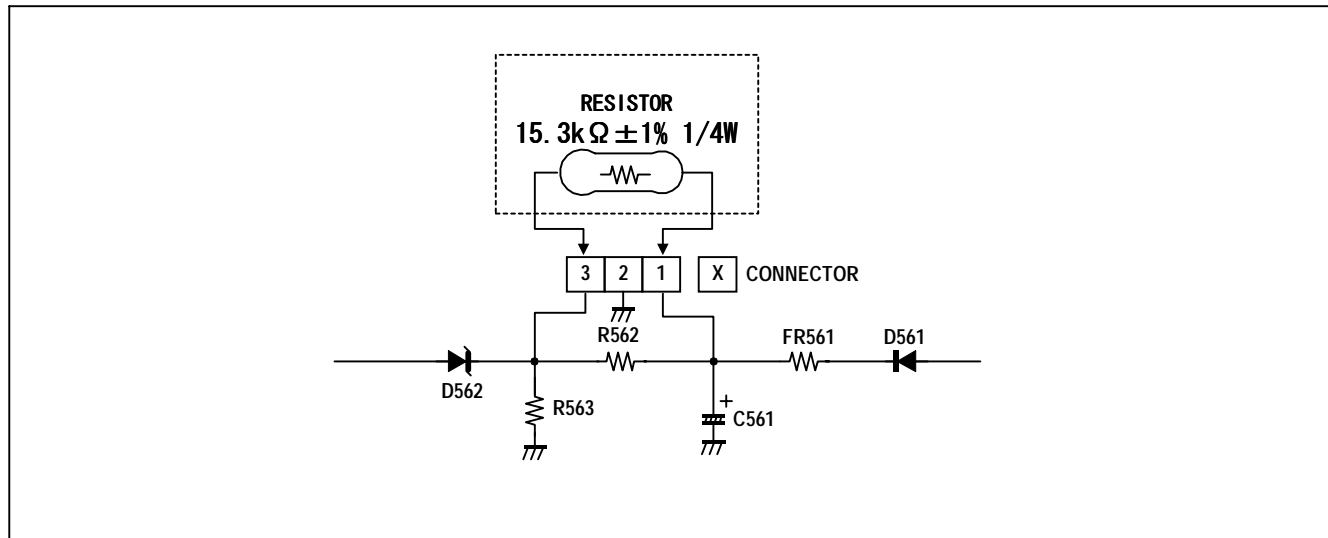


Fig. 2

SELF CHECK FUNCTIONS

1. Outline

This model has self check functions given below. When a malfunction has been detected, the SUB-POWER is turned off and the LED flashes to inform of the failure. The malfunction is detected by the signal input state of the control line connected to the microcomputer.

2. Self check items

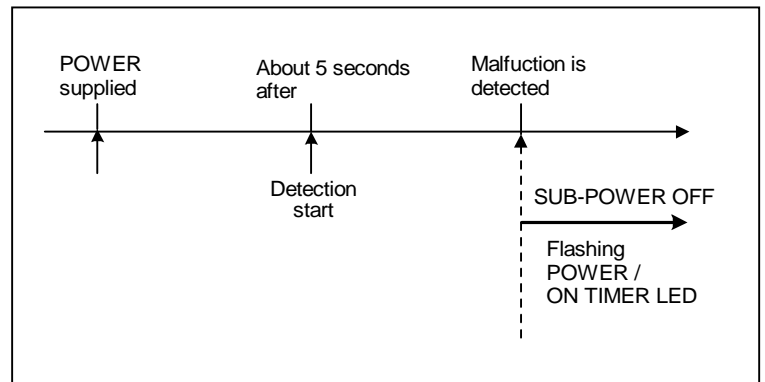
| Check item | Detected contents | Detection method | Abnormality state |
|------------------------|---|---|--|
| Over-current protector | Operation of over-current protection circuit | The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted. | During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted. |
| X-ray protector | Operation of X-ray protection circuit | The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted | During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted. |
| CRT NECK protector | When the vertical circuit S-correction capacitor C413 is shorted, detect the potential drop of the C413, and prevent the burn damage to the CRT NECK. | The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted | During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted. |

3. Self check indicating function

The self check function begins detection about 5 seconds after power is supplied.

In the event a malfunction is detected, the sub-power is cutoff immediately.

At this time, the POWER/ON TIMER LED flashes to inform of the malfunction.




| Item | LED flashing intervals | Priority of detection |
|-----------|---------------------------|-----------------------|
| OCP/X-ray | At 0.5 – second intervals | 1 |
| NECK | At 0.5 – second intervals | 2 |

- Because OCP and X-ray protectors are inputted to the same pin in the microcomputer, the judgement will be logical sum (OR).

PARTS LIST

CAUTION

- The parts identified by the  symbol are important for the safety. Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines — in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

| RESISTORS | | CAPACITORS | |
|-----------|--|-----------------|---|
| C R | Carbon Resistor | C CAP. | Ceramic Capacitor |
| F R | Fusible Resistor | E CAP. | Electrolytic Capacitor |
| P R | Plate Resistor | M CAP. | Mylar Capacitor |
| V R | Variable Resistor | HV CAP. | High Voltage Capacitor |
| HV R | High Voltage Resistor | MF CAP. | Metalized Film Capacitor |
| MF R | Metal Film Resistor | MM CAP. | Metalized Mylar Capacitor |
| MG R | Metal Glazed Resistor | MP CAP. | Metalized Polystyrol Capacitor |
| MP R | Metal Plate Resistor | PP CAP. | Polypropylene Capacitor |
| OM R | Metal Oxide Film Resistor | PS CAP. | Polystyrol Capacitor |
| CMF R | Coating Metal Film Resistor | TF CAP. | Thin Film Capacitor |
| UNF R | Non-Flammable Resistor | MPP CAP. | Metalized Polypropylene Capacitor |
| CH V R | Chip Variable Resistor | TAN. CAP. | Tantalum Capacitor |
| CH MG R | Chip Metal Glazed Resistor | CH C CAP. | Chip Ceramic Capacitor |
| COMP. R | Composition Resistor | BP E CAP. | Bi-Polar Electrolytic Capacitor |
| LPTC R | Linear Positive Temperature Coefficient Resistor | CH AL E CAP. | Chip Aluminum Electrolytic Capacitor |
| | | CH AL BP CAP. | Chip Aluminum Bi-Polar Capacitor |
| | | CH TAN. E CAP. | Chip Tantalum Electrolytic Capacitor |
| | | CH AL BP E CAP. | Chip Tantalum Bi-Polar Electrolytic Capacitor |

| TOLERANCES | | | | | | | | | |
|------------|-----|-----|------|------|------|--------------|--------------|--------------|--------------|
| F | G | J | K | M | N | R | H | Z | P |
| ±1% | ±2% | ±5% | ±10% | ±20% | ±30% | +30% -10% | +50% -10% | +80% -20% | +100% -0% |

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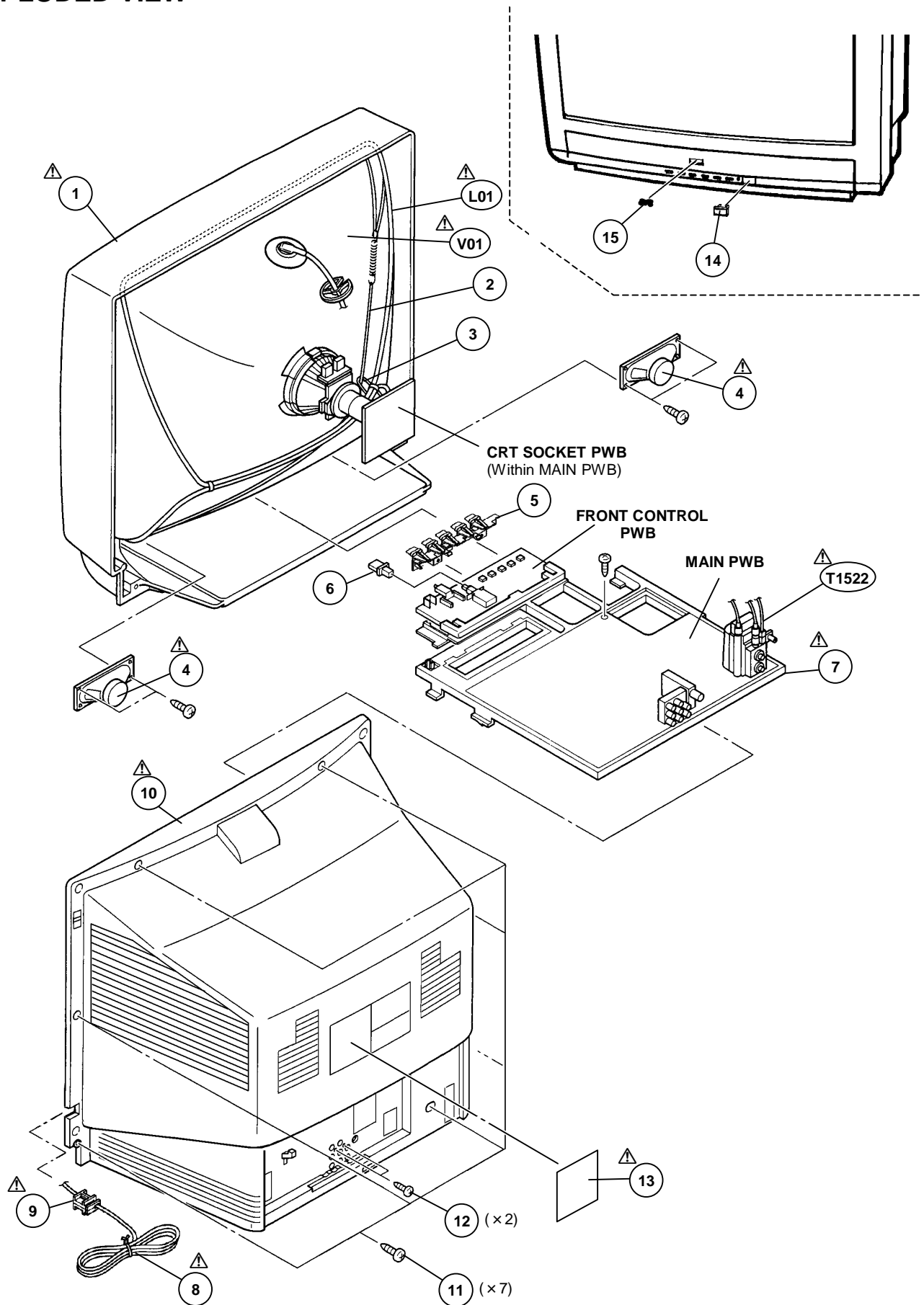
USING P.W. BOARD & REMOTE CONTROL UNIT

| P.W.B ASS'Y | Model |
|----------------------------------|------------------|
| | AV-29M201 |
| MAIN P.W.B (With CRT SOCKET PWB) | SGA-1017A-M2 |
| FRONT CONTROL P.W.B | SGA-4006A-M2 |
| REMOTE CONTROL UNIT | RM-C765-1A |

EXPLODED VIEW PARTS LIST

| △ Ref. No. | Part No. | Part Name | Description |
|------------|----------------|--------------------|-------------------|
| △ L01 | CELD058-002J3 | DEGAUSING COIL | |
| △ V01 | A68ADT25X01 | ITC TUBE (C) | (Inc. DY) |
| △ T1522 | CE42674-001J1 | H. V. TRANSF. | (Within MAIN PWB) |
| △ 1 | CM12919-008-MA | FRONT CABINET | |
| 2 | CHGB0015-0B | BRAIDED WIRE | |
| 3 | CHGB0016-0C | BRAIDED WIRE (SUB) | |
| △ 4 | CEBSS12D-04KJ2 | SPEAKER | (× 2) SP01, SP02 |
| 5 | CM36568-A02-A | PUSH KNOB | |
| 6 | CM36652-001-A | POWER KNOB | |
| △ 7 | CM12985-002-VA | CHASSIS BASE | |
| △ 8 | QMPD290-200-JC | POWER CORD | |
| △ 9 | LC20106-001D-A | CORD CLAMP | |
| △ 10 | CM12920-B02-VA | REAR COVER | |
| 11 | QYSBSFG4016Z | TAPPING SCREW | (× 7) |
| 12 | QYSBSB3010Z | TAPPING SCREW | (× 2) |
| △ 13 | GQ30018-001A-A | RATING LABEL | |
| 14 | CM35983-001-H | REMOCON WINDOW | |
| 15 | CM48006-006-C | JVC MARK | |

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN PW BOARD ASS'Y (SGA-1017A-M2)

| △ Symbol No. | Part No. | Part Name | Description |
|-----------------|--------------|-----------|---------------|
| RESISTOR | | | |
| R1001 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| △ R1002-04 | NRSA02J-561X | MG R | 560Ω 1/10W J |
| R1005 | QRZ9017-4R7 | F R | 4.7Ω 1/4W J |
| R1006 | NRSA02J-820X | MG R | 82Ω 1/10W J |
| R1101 | NRSA02J-562X | MG R | 5.6kΩ 1/10W J |
| R1102 | NRSA02J-182X | MG R | 1.8kΩ 1/10W J |
| R1103 | QRE121J-101Y | C R | 100Ω 1/2W J |
| R1104 | NRSA02J-180X | MG R | 18Ω 1/10W J |
| R1105 | NRSA02J-270X | MG R | 27Ω 1/10W J |
| R1111 | NRSA02J-394X | MG R | 390kΩ 1/10W J |
| R1112 | NRSA02J-334X | MG R | 330kΩ 1/10W J |
| R1113 | NRSA02J-101X | MG R | 100Ω 1/10W J |
| R1116 | NRSA02J-680X | MG R | 68Ω 1/10W J |
| R1131 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1132 | NRSA02J-331X | MG R | 330Ω 1/10W J |
| R1133 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1134 | NRSA02J-271X | MG R | 270Ω 1/10W J |
| R1135 | NRSA02J-471X | MG R | 470Ω 1/10W J |
| R1161 | NRSA02J-332X | MG R | 3.3kΩ 1/10W J |
| R1162 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1163 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1164 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1165 | NRSA02J-273X | MG R | 27kΩ 1/10W J |
| R1166 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1167 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1168 | NRSA02J-101X | MG R | 100Ω 1/10W J |
| R1169 | NRSA02J-561X | MG R | 560Ω 1/10W J |
| R1170 | NRSA02J-123X | MG R | 12kΩ 1/10W J |
| R1201 | NRSA02J-821X | MG R | 820Ω 1/10W J |
| R1202 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1203 | NRSA02J-821X | MG R | 820Ω 1/10W J |
| R1204 | NRSA02J-681X | MG R | 680Ω 1/10W J |
| R1205 | NRSA02J-152X | MG R | 1.5kΩ 1/10W J |
| R1213 | NRSA02J-391X | MG R | 390Ω 1/10W J |
| R1215 | NRSA02J-824X | MG R | 820kΩ 1/10W J |
| R1216 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1217 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| R1220 | NRSA02J-471X | MG R | 470Ω 1/10W J |
| R1251-52 | NRSA02J-750X | MG R | 75Ω 1/10W J |
| R1301 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1303-04 | NRSA02J-562X | MG R | 5.6kΩ 1/10W J |
| R1307 | NRSA02J-472X | MG R | 4.7kΩ 1/10W J |
| R1308 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1309 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1311 | NRSA02J-273X | MG R | 27kΩ 1/10W J |
| R1312 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1314 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1341 | NRSA02J-121X | MG R | 120Ω 1/10W J |
| R1342-43 | NRSA02J-333X | MG R | 33kΩ 1/10W J |
| R1351-53 | NRSA02J-151X | MG R | 150Ω 1/10W J |
| R1354-56 | NRSA02J-331X | MG R | 330Ω 1/10W J |
| R1357-59 | NRSA02J-101X | MG R | 100Ω 1/10W J |
| R1360-62 | QRZ0111-152 | C R | 1.5kΩ 1/2W K |
| R1363-65 | QRG029J-123 | OM R | 12kΩ 2W J |
| R1366-68 | NRSA02J-272X | MG R | 2.7kΩ 1/10W J |
| R1401 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1402 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1403 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1404 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1405 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1406-08 | NRSA02J-472X | MG R | 4.7kΩ 1/10W J |
| R1410 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1413 | QRE121J-391Y | C R | 390Ω 1/2W J |
| R1414 | QRX01GJ-R68 | MF R | 0.68Ω 1W J |
| R1416 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| R1418 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| R1419 | NRSA02J-183X | MG R | 18kΩ 1/10W J |
| R1421-22 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |

| △ Symbol No. | Part No. | Part Name | Description |
|-----------------|---------------|-----------|---------------|
| RESISTOR | | | |
| R1423 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1501 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1503 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1504 | NRSA02J-104X | MG R | 100kΩ 1/10W J |
| R1505 | NRSA02J-822X | MG R | 8.2kΩ 1/10W J |
| R1506 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1510 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1512 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1513 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1514 | NRSA02J-333X | MG R | 33kΩ 1/10W J |
| R1521 | QRL039J-182 | OM R | 1.8kΩ 3W J |
| R1523 | NRSA02J-222X | MG R | 2.2kΩ 1/10W J |
| R1524 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| R1525 | QRG01GJ-561 | OM R | 560Ω 1W J |
| R1526 | QRL029J-152 | OM R | 1.5kΩ 2W J |
| R1529 | NRSA02J-621X | MG R | 620Ω 1/10W J |
| R1532 | QRL039J-182 | OM R | 1.8kΩ 3W J |
| R1533 | QRE121J-220Y | C R | 22Ω 1/2W J |
| R1544 | QRL029J-223 | OM R | 22kΩ 2W J |
| △ R1562 | QRA14CF-6201Y | MF R | 6.2kΩ 1/4W F |
| △ R1563 | QRA14CF-3741Y | MF R | 3.74kΩ 1/4W F |
| R1581 | QRE121J-273Y | C R | 27kΩ 1/2W J |
| R1582 | QRE121J-393Y | C R | 39kΩ 1/2W J |
| R1584 | QRE121J-223Y | C R | 22kΩ 1/2W J |
| R1603 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1605 | NRSA02J-821X | MG R | 820Ω 1/10W J |
| R1607 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1609 | NRSA02J-821X | MG R | 820Ω 1/10W J |
| R1611 | NRSA02J-223X | MG R | 22kΩ 1/10W J |
| R1613 | NRSA02J-333X | MG R | 33kΩ 1/10W J |
| R1620 | NRSA02J-183X | MG R | 18kΩ 1/10W J |
| R1621 | QRT039J-2R2 | MF R | 2.2Ω 3W J |
| R1622 | NRSA02J-183X | MG R | 18kΩ 1/10W J |
| R1626 | NRSA02J-822X | MG R | 8.2kΩ 1/10W J |
| R1631 | NRSA02J-473X | MG R | 47kΩ 1/10W J |
| R1651 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1652 | NRSA02J-561X | MG R | 560Ω 1/10W J |
| R1653 | NRSA02J-272X | MG R | 2.7kΩ 1/10W J |
| R1654 | NRSA02J-333X | MG R | 33kΩ 1/10W J |
| R1655 | NRSA02J-332X | MG R | 3.3kΩ 1/10W J |
| R1656 | NRVA02D-152X | MF R | 1.5kΩ 1/10W D |
| R1658 | NRVA02D-153X | MF R | 15kΩ 1/10W D |
| R1660 | NRSA02J-512X | MG R | 5.1kΩ 1/10W J |
| R1661 | NRSA02J-473X | MG R | 47kΩ 1/10W J |
| R1662-65 | NRSA02J-123X | MG R | 12kΩ 1/10W J |
| R1666-67 | NRSA02J-562X | MG R | 5.6kΩ 1/10W J |
| R1668 | NRSA02J-473X | MG R | 47kΩ 1/10W J |
| R1669-70 | NRSA02J-471X | MG R | 470Ω 1/10W J |
| R1671-72 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1673-74 | NRSA02J-823X | MG R | 82kΩ 1/10W J |
| R1675-76 | NRSA02J-181X | MG R | 180Ω 1/10W J |
| R1677 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1678-81 | NRSA02J-223X | MG R | 22kΩ 1/10W J |
| R1682 | NRSA02J-683X | MG R | 68kΩ 1/10W J |
| R1685-88 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1691-92 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1701 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| R1702 | NRSA02J-223X | MG R | 22kΩ 1/10W J |
| R1703 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1704 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1705 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1706 | NRSA02J-563X | MG R | 56kΩ 1/10W J |
| R1707 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1708 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1709 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1710 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1711 | NRSA02J-124X | MG R | 120kΩ 1/10W J |
| R1712 | NRSA02J-184X | MG R | 180kΩ 1/10W J |

| △ Symbol No. | Part No. | Part Name | Description |
|-----------------|--------------|-----------|---------------|
| RESISTOR | | | |
| R1713 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1714 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1715 | NRSA02J-183X | MG R | 18kΩ 1/10W J |
| R1716-17 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1721 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1722 | NRSA02J-561X | MG R | 560Ω 1/10W J |
| R1724 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1725 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1726 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1727 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1728 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1729 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1730 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1731-32 | NRSA02J-682X | MG R | 6.8kΩ 1/10W J |
| R1734 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1735-36 | NRSA02J-473X | MG R | 47kΩ 1/10W J |
| R1737 | NRSA02J-683X | MG R | 68kΩ 1/10W J |
| R1738 | NRSA02J-562X | MG R | 5.6kΩ 1/10W J |
| R1740 | NRSA02J-101X | MG R | 100Ω 1/10W J |
| R1741 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1742 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1743 | NRSA02J-392X | MG R | 3.9kΩ 1/10W J |
| R1744 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1745 | NRSA02J-392X | MG R | 3.9kΩ 1/10W J |
| R1746 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1747 | NRSA02J-392X | MG R | 3.9kΩ 1/10W J |
| R1748-49 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1750-52 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1754-55 | NRSA02J-222X | MG R | 2.2kΩ 1/10W J |
| R1756 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1761 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1762 | NRSA02J-153X | MG R | 15kΩ 1/10W J |
| R1764 | NRSA02J-105X | MG R | 1MΩ 1/10W J |
| R1765 | NRSA02J-122X | MG R | 1.2kΩ 1/10W J |
| R1766 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1771-72 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1773 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1774-75 | NRSA02J-102X | MG R | 1kΩ 1/10W J |
| R1799 | NRSA02J-333X | MG R | 33kΩ 1/10W J |
| R1801-03 | NRSA02J-221X | MG R | 220Ω 1/10W J |
| R1811-13 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1815 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| △ R1901 | QRF154K-4R7 | UNF R | 4.7Ω 15W K |
| R1902 | QRL039J-393 | OM R | 39kΩ 3W J |
| R1905 | QRF154J-680 | UNF R | 68 Ω 15W J |
| R1910 | QRE121J-564Y | C R | 560kΩ 1/2W J |
| R1911 | QRN141J-183Y | C R | 18kΩ 1/4W J |
| R1921 | QRE121J-681Y | C R | 680Ω 1/2W J |
| R1922-23 | QRT029J-R22 | MF R | 0.22Ω 2W J |
| R1924 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| R1925 | QRE121J-102Y | C R | 1kΩ 1/2W J |
| R1926 | QRE121J-152Y | C R | 1.5kΩ 1/2W J |
| R1929 | QRE121J-332Y | C R | 3.3kΩ 1/2W J |
| R1932 | QRE121J-4R7Y | C R | 4.7Ω 1/2W J |
| R1941 | QRK129J-150 | C R | 15Ω 1/2W J |
| R1942 | NRSA02J-223X | MG R | 22kΩ 1/10W J |
| R1943 | QRE121J-152Y | C R | 1.5kΩ 1/2W J |
| R1944 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1945 | NRSA02J-332X | MG R | 3.3kΩ 1/10W J |
| R1946 | NRSA02J-123X | MG R | 12kΩ 1/10W J |
| R1948 | NRSA02J-152X | MG R | 1.5kΩ 1/10W J |
| R1949 | NRSA02J-153X | MG R | 15kΩ 1/10W J |
| R1950 | NRSA02J-103X | MG R | 10kΩ 1/10W J |
| R1951 | NRSA02J-332X | MG R | 3.3kΩ 1/10W J |
| R1952 | NRSA02J-472X | MG R | 4.7kΩ 1/10W J |
| R1959 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| R1961-62 | QRT029J-1R2 | MF R | 1.2Ω 2W J |
| R1964 | QRE121J-272Y | C R | 2.7kΩ 1/2W J |
| R1965 | QRE121J-473Y | C R | 47kΩ 1/2W J |
| R1966 | QRE121J-223Y | C R | 22kΩ 1/2W J |

| △ Symbol No. | Part No. | Part Name | Description |
|------------------|--------------|-----------|----------------|
| RESISTOR | | | |
| △ R1981 | QRZ0057-825 | C R | 8.2MΩ 1W J |
| CAPACITOR | | | |
| C1001 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1007 | QETN1CM-477Z | E CAP. | 470μF 16V M |
| C1008-09 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| C1011 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1101-02 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1104-05 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1111 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| C1112-14 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1116 | QFV71HJ-224Z | MF CAP. | 0.22μF 50V J |
| C1117 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| C1118 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1119 | NDC21HJ-681X | C CAP. | 680pF 50V J |
| C1120 | QETN1HM-474Z | E CAP. | 0.47μF 50V M |
| C1123-24 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1161 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1163-64 | NDC21HJ-470X | C CAP. | 47pF 50V J |
| C1165-66 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1202 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1205 | NDC21HJ-680X | C CAP. | 68pF 50V J |
| C1207 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| C1208 | QETN1HM-475Z | E CAP. | 4.7μF 50V M |
| C1209 | QETN1CM-227Z | E CAP. | 220μF 16V M |
| C1210 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1211 | NDC21HJ-681X | C CAP. | 680pF 50V J |
| C1212 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| C1213 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| C1214 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| C1215 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1251-52 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1255 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1256 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1291-92 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1294 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1296 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1301-02 | NDC21HJ-150X | C CAP. | 150pF 50V J |
| C1303 | NDC21HJ-120X | C CAP. | 12pF 50V J |
| C1304 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1305 | NDC21HJ-120X | C CAP. | 12pF 50V J |
| C1306 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| C1307 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1308-09 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| C1311 | QETN1HM-225Z | E CAP. | 2.2μF 50V M |
| C1312 | QFLC1HJ-103Z | M CAP. | 0.01μF 50V J |
| C1313 | QETN1HM-475Z | E CAP. | 4.7μF 50V M |
| C1342 | QETN1HM-335Z | E CAP. | 3.3μF 50V M |
| C1354-55 | NDC21HJ-271X | C CAP. | 270pF 50V J |
| C1356 | NDC21HJ-331X | C CAP. | 330pF 50V J |
| C1357 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| △ C1382 | QCZ0121-102 | C CAP. | 1000pF 3kV Z |
| C1401-02 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| C1403 | QEM61EK-225Z | E CAP. | 2.2μF 25V K |
| C1405 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| C1406 | QFLC1HJ-103Z | M CAP. | 0.01μF 50V J |
| C1410 | QETN1VM-107Z | E CAP. | 100μF 35V M |
| C1411 | QETN1VM-477Z | E CAP. | 470μF 35V M |
| C1412 | QFLC2AK-563Z | M CAP. | 0.056μF 100V K |
| C1413 | QETM1VM-228 | E CAP. | 2200μF 35V M |
| C1414 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| C1415 | QFN31HJ-152Z | M CAP. | 1500pF 50V J |
| C1501 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| C1503 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1505-06 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| C1507 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| C1511 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| C1521 | QCB32HK-151Z | C CAP. | 150pF 500V K |
| C1522 | QCB32HK-331Z | C CAP. | 330pF 500V K |

△ Symbol No. Part No. Part Name Description

CAPACITOR

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|---|-------|--------------|----------|---------------------|
| | C1523 | QETN2CM-105Z | E CAP. | 1μF 160V M |
| △ | C1524 | QFZ0117-104Z | MPP CAP. | 10400pF1.4KVH ±2.5% |
| △ | C1525 | QFZ0119-434 | MPP CAP. | 0.43μF 200V ±3% |
| △ | C1526 | QEZO203-107 | E CAP. | 100μF 160V M |
| | C1541 | QETM2EM-336 | E CAP. | 33μF 250V M |
| | C1542 | QCB32HK-821Z | C CAP. | 820pF 500V K |
| | C1543 | QETM1VM-108 | E CAP. | 1000μF 35V M |
| | C1544 | QCB32HK-821Z | C CAP. | 820pF 500V K |

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|--|-------|--------------|-----------|---------------|
| | C1546 | QETN1CM-227Z | E CAP. | 220μF 16V M |
| | C1547 | QETN1CM-108Z | E CAP. | 1000μF 16V M |
| | C1548 | QCZ0122-821 | C CAP. | 820pF 2kV K |
| | C1561 | QETN1VM-107Z | E CAP. | 100μF 35V M |
| | C1581 | QFLC1HJ-473Z | M CAP. | 0.047μF 50V J |
| | C1583 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1584 | QFLC2AJ-104Z | M CAP. | 0.1μF 100V J |
| | C1604 | QENC1HM-474Z | BP E CAP. | 0.47μF 50V M |

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|--|----------|--------------|-----------|--------------|
| | C1607 | QENC1HM-474Z | BP E CAP. | 0.47μF 50V M |
| | C1609 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| | C1613 | QETN1EM-108Z | E CAP. | 1000μF 25V M |
| | C1615 | QETN1EM-108Z | E CAP. | 1000μF 25V M |
| | C1617 | QETN1EM-108Z | E CAP. | 1000μF 25V M |
| | C1618 | QFV71HJ-224Z | MF CAP. | 0.22μF 50V J |
| | C1622 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1623-24 | QENC1HM-474Z | BP E CAP. | 0.47μF 50V M |

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|--|----------|--------------|-----------|--------------|
| | C1631 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| | C1637-38 | NCB21HK-392X | C CAP. | 3900pF 50V K |
| | C1651 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1652 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| | C1653 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| | C1654 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1655 | QENC1HM-475Z | BP E CAP. | 4.7μF 50V M |
| | C1656 | QENC1HM-105Z | BP E CAP. | 1μF 50V M |

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|--|----------|--------------|-----------|---------------|
| | C1657 | QETN1HM-225Z | E CAP. | 2.2μF 50V M |
| | C1658 | NCB21HK-473X | C CAP. | 0.047μF 50V K |
| | C1659 | QETN1HM-474Z | E CAP. | 0.47μF 50V M |
| | C1660-61 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1662 | QBTC1CK-335Z | TAN. CAP. | 3.3μF 16V K |
| | C1663 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1664 | QBTC1CK-106Z | TAN. CAP. | 10μF 16V K |
| | C1665-66 | QETN1HM-105Z | E CAP. | 1μF 50V M |

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|--|----------|--------------|-----------|--------------|
| | C1667 | QETN1HM-336Z | E CAP. | 33μF 50V M |
| | C1668 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1669-70 | QENC1HM-105Z | BP E CAP. | 1μF 50V M |
| | C1671 | QETN1HM-225Z | E CAP. | 2.2μF 50V M |
| | C1672 | NCB21HK-222X | C CAP. | 2200pF 50V K |
| | C1673 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1674 | QETN1HM-225Z | E CAP. | 2.2μF 50V M |
| | C1675 | NCB21HK-222X | C CAP. | 2200pF 50V K |

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|--|----------|--------------|--------|---------------|
| | C1676 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1677 | NCB21HK-223X | C CAP. | 0.022μF 50V K |
| | C1679 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1680 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| | C1682-83 | QETN1HM-475Z | E CAP. | 4.7μF 50V M |
| | C1684-86 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| | C1691-92 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| | C1693-94 | NCB21HK-392X | C CAP. | 3900pF 50V K |

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|--|-------|--------------|--------|--------------|
| | C1701 | NDC21HJ-102X | C CAP. | 1000pF 50V J |
| | C1703 | NCB21HK-102X | C CAP. | 1000pF 50V K |
| | C1704 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1705 | NDC21HJ-471X | C CAP. | 470pF 50V J |
| | C1706 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1707 | NDC21HJ-180X | C CAP. | 18pF 50V J |
| | C1708 | NDC21HJ-220X | C CAP. | 22pF 50V J |
| | C1709 | QETN1EM-476Z | E CAP. | 47μF 25V M |

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|--|----------|--------------|--------|--------------|
| | C1710 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1711 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1712-13 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| | C1714 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1715 | NDC21HJ-150X | C CAP. | 15pF 50V J |
| | C1716 | NDC21HJ-390X | C CAP. | 39pF 50V J |
| | C1717 | NDC21HJ-151X | C CAP. | 150pF 50V J |

△ Symbol No. Part No. Part Name Description

CAPACITOR

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|--|-------|--------------|--------|--------------|
| | C1718 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| | C1719 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| | C1720 | NDC21HJ-151X | C CAP. | 150pF 50V J |
| | C1722 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1761 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1762 | NDC21HJ-221X | C CAP. | 220pF 50V J |
| | C1763 | NCB21HK-102X | C CAP. | 1000pF 50V K |
| | C1765 | NDC21HJ-101X | C CAP. | 100pF 50V J |

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|--|----------|--------------|-----------|--------------|
| | C1766 | QENC1HM-474Z | BP E CAP. | 0.47μF 50V M |
| | C1771 | QETN1EM-476Z | E CAP. | 47μF 25V M |
| | C1772 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1773 | QETN1HM-105Z | E CAP. | 1μF 50V M |
| | C1774-76 | NCB21HK-102X | C CAP. | 1000pF 50V K |
| | C1779 | NDC21HJ-100X | C CAP. | 10pF 50V J |
| | C1780-81 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| | C1805 | QETN1CM-227Z | E CAP. | 220μF 16V M |

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|---|----------|--------------|---------|----------------|
| | C1806 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| | C1811-13 | NCB21HK-103X | C CAP. | 0.01μF 50V K |
| △ | C1901 | QFZ9040-104 | MF CAP. | 0.1μFAC275V M |
| △ | C1902 | QFZ9040-104 | MF CAP. | 0.1μFAC275V M |
| △ | C1903 | QCZ9074-472 | C CAP. | 4700pFAC250V M |
| △ | C1904 | QCZ9074-472 | C CAP. | 4700pFAC250V M |
| △ | C1905 | QCZ9074-472 | C CAP. | 4700pFAC250V M |
| △ | C1906 | QEZO371-337 | E CAP. | 330μF 400V M |

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|--|-------|--------------|--------|--------------|
| | C1921 | QCZO325-222 | C CAP. | 2200pF 2kV K |
| | C1922 | QCS31HJ-471Z | C CAP. | 470pF 50V J |
| | C1924 | QETN1VM-477Z | E CAP. | 470μF 35V M |
| | C1925 | QFN31HJ-102Z | M CAP. | 1000pF 50V J |
| | C1926 | QFN31HJ-222Z | M CAP. | 2200pF 50V J |
| | C1928 | QFLC1HJ-104Z | M CAP. | 0.1μF 50V J |
| | C1931 | QCZO122-391 | C CAP. | 390pF 2kV K |
| | C1941 | QCZO325-561 | C CAP. | 560pF 2kV K |

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|---|-------|--------------|--------|--------------|
| △ | C1942 | QEZO203-107 | E CAP. | 100μF 160V M |
| | C1943 | QCB32HK-561Z | C CAP. | 560pF 500V K |
| | C1944 | QETN1CM-477Z | E CAP. | 470μF 16V M |
| | C1945 | QETN1CM-108Z | E CAP. | 1000μF 16V M |
| | C1946 | QETN1EM-107Z | E CAP. | 100μF 25V M |
| | C1947 | QETN1HM-106Z | E CAP. | 10μF 50V M |
| | C1952 | QETN1EM-108Z | E CAP. | 1000μF 25V M |
| | C1953 | QCZO122-561 | C CAP. | 560pF 2kV K |

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|---|-------|--------------|--------|----------------|
| | C1957 | QCB31HK-471Z | C CAP. | 470pF 50V K |
| | C1961 | QETN1CM-107Z | E CAP. | 100μF 16V M |
| | C1962 | QETN1HM-476Z | E CAP. | 47μF 50V M |
| △ | C1981 | QCZ9075-471 | C CAP. | 470pFAC250V K |
| △ | C1982 | QCZ9075-222 | C CAP. | 2200pFAC250V M |
| △ | C1983 | QCZ9075-471 | C CAP. | 470pFAC250V K |

TRANSFORMER

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|---|-------|---------------|------------------|--|
| | T1111 | CELT001-209J3 | C. WAVE TRANSF. | |
| | T1521 | CE42034-002 | H. DRIVE TRANSF. | |
| △ | T1522 | CE42674-001J1 | H. V. TRANSF. | |
| △ | T1921 | CETS090-001J8 | SWITCH. TRANSF. | |

COIL

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|--|-------|--------------|--------------|--------|
| | L1001 | QQL03BJ-150Z | PEAKING COIL | 15μH |
| | L1003 | QQL03BJ-4R7Z | PEAKING COIL | 4.7μH |
| | L1101 | QQLZ014-R22 | PEAKING COIL | 0.22μH |
| | L1131 | QQL03BJ-220Z | PEAKING COIL | 22μH |
| | L1161 | QQL03BJ-220Z | PEAKING COIL | 22μH |
| | L1205 | QQL03BJ-4R7Z | PEAKING COIL | 4.7μH |
| | L1301 | QQL03BJ-390Z | PEAKING COIL | 39μH |
| | L1381 | QQL03BJ-390Z | PEAKING COIL | 39μH |

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|---|----------|--------------|----------------|-------|
| △ | L1501 | QQL03BJ-4R7Z | PEAKING COIL | 4.7μH |
| | L1521 | CELL009-003 | LINEARITY COIL | |
| | L1701-02 | QQL03BJ-4R7Z | PEAKING COIL | 4.7μH |
| | L1704 | QQL39BK-8R2Z | PEAKING COIL | 8.2μH |
| | L1771 | QQL03BJ-4R7Z | PEAKING COIL | 4.7μH |
| | L1941-42 | QQL42AK-820Z | CHOKE COIL | |

△ Symbol No. Part No. Part Name Description

DIODE

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|----------|----------------|--------------|--|
| D1001 | MTZJ33A-T2 | ZENER DIODE | |
| D1201 | 1SS133-T2 | SI. DIODE | |
| D1202 | MTZJ7.5B-T2 | ZENER DIODE | |
| D1253-56 | MTZJ9.1C-T2 | ZENER DIODE | |
| D1341 | 1SS133-T2 | SI. DIODE | |
| D1401 | 1N4003-T2 | SI. DIODE | |
| D1402 | MTZJ75-T2 | ZENER DIODE | |
| D1510 | 1SS133-T2 | SI. DIODE | |
| D1512 | RH3G-F1 | SI. DIODE | |
| D1541 | RH15-T3 | SI. DIODE | |
| D1542-43 | RGP10J-5025-T3 | SI. DIODE | |
| D1544 | RH15-T3 | SI. DIODE | |
| D1561 | 1SS81-T2 | SI. DIODE | |
| △ D1562 | MTZJ7.5S-T2 | ZENER DIODE | |
| D1581 | RGP10J-5025-T3 | SI. DIODE | |
| D1582 | MTZJ9.1B-T2 | ZENER DIODE | |
| D1631-34 | 1SS133-T2 | SI. DIODE | |
| D1656-57 | MTZJ9.1C-T2 | ZENER DIODE | |
| D1691-92 | MTZJ9.1C-T2 | ZENER DIODE | |
| D1701 | 1SS133-T2 | SI. DIODE | |
| D1703-04 | 1SS133-T2 | SI. DIODE | |
| D1710 | MTZJ5.6A-T2 | ZENER DIODE | |
| D1712-13 | 1SS133-T2 | SI. DIODE | |
| D1771-72 | MTZJ5.6A-T2 | ZENER DIODE | |
| D1801-03 | MTZJ15B-T2 | ZENER DIODE | |
| D1805 | MTZJ15B-T2 | ZENER DIODE | |
| △ D1901 | D3SBA60 | DIODE BRIDGE | |
| D1903 | RGP10J-5025-T3 | SI. DIODE | |
| D1905 | MTZJ6.8A-T2 | ZENER DIODE | |
| D1921-22 | RGP10J-5025-T3 | SI. DIODE | |
| D1923 | MTZJ15A-T2 | ZENER DIODE | |
| D1924 | 1SS133-T2 | SI. DIODE | |
| D1927-28 | 1SS133-T2 | SI. DIODE | |
| D1929 | MTZJ15A-T2 | ZENER DIODE | |
| D1941 | RU3AM-LFC4 | SI. DIODE | |

DIODE

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|-------|----------------|-------------|--|
| D1942 | RGP10J-5025-T3 | SI. DIODE | |
| D1943 | 1SS133-T2 | SI. DIODE | |
| D1945 | MTZJ5.1B-T2 | ZENER DIODE | |
| D1948 | RU3YX-LFC4 | SI. DIODE | |
| D1961 | MTZJ7.5S-T2 | ZENER DIODE | |
| D1962 | 1SS133-T2 | SI. DIODE | |

TRANSISTOR

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|----------|-----------------|------------------|--------|
| Q1101 | 2SC5083/L-P/-T | SI. TRANSISTOR | |
| Q1131 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1161 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1201-02 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1301-02 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1341-42 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1351-53 | 2SC4544-LB | SI. TRANSISTOR | |
| Q1401 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1511 | 2SC2785/JH/-T | SI. TRANSISTOR | |
| Q1521 | BSN304-T | F. E. T. | |
| △ Q1522 | 2SD2499-LB | SI. TRANSISTOR | H. OUT |
| Q1601 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1603 | DTC124EKA-X | DIGI. TRANSISTOR | |
| Q1604-05 | DTC323TK-X | DIGI. TRANSISTOR | |
| Q1631 | 2SA1037AK/QR/-X | SI. TRANSISTOR | |
| Q1651-54 | DTC323TK-X | DIGI. TRANSISTOR | |
| Q1701-02 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1703 | DTC124EKA-X | DIGI. TRANSISTOR | |
| Q1761 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1921 | 2SA933AS/QR/-T | SI. TRANSISTOR | |
| Q1941 | 2SA966/OY/-T | SI. TRANSISTOR | |
| Q1942-44 | 2SC2412K/QR/-X | SI. TRANSISTOR | |
| Q1961 | 2SA949/Y/Z1-T | SI. TRANSISTOR | |

△ Symbol No. Part No. Part Name Description

IC

| | | | |
|----------|----------------|-------------------|-----------|
| IC1001 | AN78L05-T | I.C. (MONO-ANA) | |
| IC1101 | M52342SP | I.C. (MONO-ANA) | |
| IC1201 | TB1230N | I.C. (DIGI-OTHER) | |
| IC1251 | BA7612N | I.C. (MONO-ANA) | |
| IC1291 | AN78N05 | I.C. (M) | |
| IC1292 | AN78L09-T | I.C. (MONO-ANA) | |
| IC1293 | AN78L05-T | I.C. (MONO-ANA) | |
| IC1401 | LA7840 | I.C. (MONO-ANA) | |
| IC1541 | AN7809F | I.C. (MONO-ANA) | |
| △ IC1601 | LA4485 | I.C. (MONO-ANA) | |
| IC1651 | UPC1851BCU | I.C. (MONO-ANA) | |
| IC1652 | BA15218N | I.C. (MONO-ANA) | |
| IC1701 | M37267M8-230SP | I.C. | (SERVICE) |
| IC1702 | AT24C02-29M201 | I.C. | |
| IC1703 | L78LR05E-MA | I.C. (MONO-ANA) | |
| △ IC1921 | STR-F6654 | I.C. (HYBRID) | |
| △ IC1941 | SE130N | I.C. (H) | |

OTHERS

| | | | |
|-----------|----------------|-------------------|--------------|
| CF1001 | CM48271-001-A | SHIELD PLATE | |
| CF1131 | QAX0349-001 | CERAMIC FILTER | |
| CF1161 | QAX0339-001 | CERAMIC FILTER | |
| CL1002 | SFSH4.5MCB | CERAMIC FILTER | |
| CP1941 | QZW0028-002 | WIRE CLAMP | |
| △ CP1942 | ICP-N75-Y | I.C. PROTECT | |
| △ EF1301 | ICP-N50-Y | I.C. PROTECT | |
| | CE42142-222Z | EMI FILTER | |
| △ F1901 | QMF51E2-3R15J4 | FUSE | 3.15A |
| FC1901-02 | CEMG002-001Z | FUSE CLIP | |
| △ FR1542 | QRZ9023-1R0 | F R | 1Ω 2W J |
| △ FR1543 | QRZ9023-2R2 | F R | 2.2Ω 2W J |
| △ FR1561 | QRZ9017-4R7 | F R | 4.7Ω 1/4W J |
| △ FR1585 | QRZ9022-R33 | F R | 0.33Ω 1W K |
| △ FR1586 | QRE121J-682Y | C R | 6.8kΩ 1/2W J |
| J1001 | QNN0086-001 | PIN JACK | |
| K1401 | QQR0621-001Z | BEADS CORE | |
| K1921 | QQR0582-001Z | BEADS CORE | |
| K1923 | QQR0582-001Z | BEADS CORE | |
| K1941-43 | QQR0582-001Z | BEADS CORE | |
| △ LF1901 | QQR0676-001 | LINE FILTER | |
| △ PC1921 | TLP621(GR)-LF2 | I.C. (PH.COUPLER) | |
| SF1101 | QAX0324-002 | SAW FILTER | |
| △ SK1351 | CE42535-001J1 | C.R.T. SOCKET | |
| △ TH1901 | QAD0101-9R0 | P.THERMISTOR | |
| △ TH1902 | QAD0101-9R0 | P.THERMISTOR | |
| △ TU1001 | CEEK280-B02 | TUNER | |
| △ VA1901 | ERZV10V621CS | VARIATOR | |
| W1009 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1028 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1043 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1053-56 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1060-61 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1063-65 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1067 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1073 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1121 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1201-05 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1327 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1330-31 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1340-41 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1344 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1368-69 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1378 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1380 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1386 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1388-90 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1394-95 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1397 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1399 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1404 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |
| W1409 | NRSA02J-OROX | MG R | 0.0Ω 1/10W J |

| △ Symbol No. | Part No. | Part Name | Description |
|---------------|--------------|-----------|--------------|
| OTHERS | | | |
| W1411-17 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| W1702 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| W1718 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| X1301 | QAX0305-001Z | CRYSTAL | |
| X1701 | QAX0468-001Z | CRYSTAL | |
| Y1201 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| Y1701 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |
| Y1703 | NRSA02J-0R0X | MG R | 0.0Ω 1/10W J |

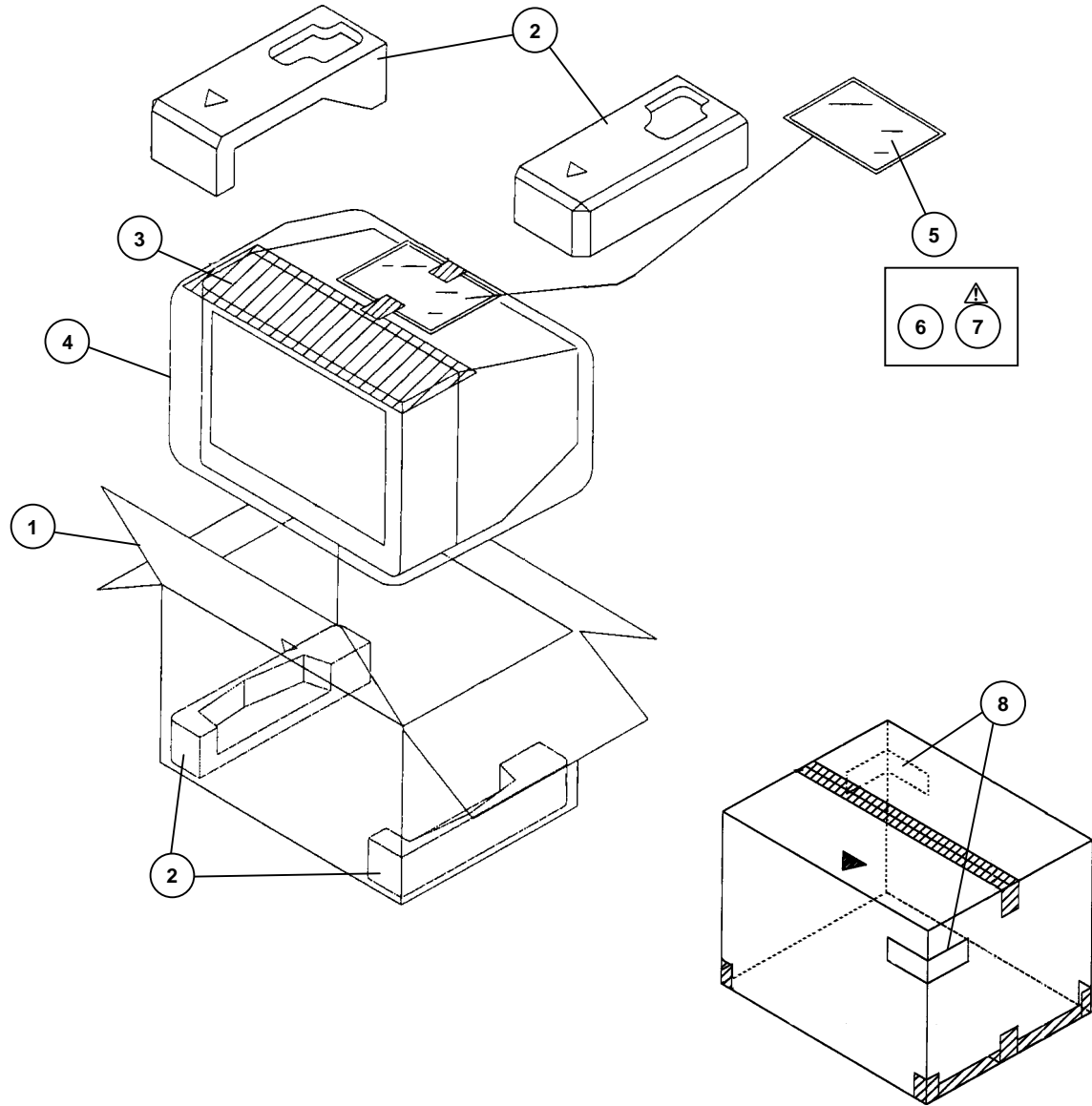
FRONT CONTROL PW BOARD ASS'Y (SGA-4006A-M2)

| △ Symbol No. | Part No. | Part Name | Description |
|-------------------|----------------|-----------------|--------------|
| RESISTOR | | | |
| R4701 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| R4702 | QRE121J-562Y | C R | 5.6kΩ 1/2W J |
| R4703-04 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| R4705 | QRE121J-562Y | C R | 5.6kΩ 1/2W J |
| R4706 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| R4707-08 | QRE121J-223Y | C R | 22kΩ 1/2W J |
| R4709 | QRE121J-561Y | C R | 560Ω 1/2W J |
| R4710-11 | QRE121J-223Y | C R | 22kΩ 1/2W J |
| R4712 | QRE121J-561Y | C R | 560Ω 1/2W J |
| R4713 | QRE121J-103Y | C R | 10kΩ 1/2W J |
| CAPACITOR | | | |
| C4701 | QETN1CM-476Z | E CAP. | 47μF 16V M |
| C4702 | QCB32HK-561Z | C CAP. | 560pF 500V K |
| COIL | | | |
| L4701 | QQL03BJ-560Z | PEAKING COIL | 56μH |
| DIODE | | | |
| D4702 | SPR-39MVMF | L.E.D. | |
| TRANSISTOR | | | |
| Q4701 | 2SA933S(QR)-T | SI TRANSISTOR | |
| Q4702 | 2SC1740S(QR)-T | SI TRANSISTOR | |
| IC | | | |
| IC4701 | PIC-21043SR | IFR DETECT UNIT | |
| OTHERS | | | |
| | CM36333-001-H | L.E.D. HOLDER | |
| | CM36334-001-H | L.E.D. LENS | |
| S4701 | QSW0707-001Z | TACT SWITCH | VOL + |
| S4702 | QSW0707-001Z | TACT SWITCH | VOL - |
| S4703 | QSW0707-001Z | TACT SWITCH | CH + |
| S4704 | QSW0707-001Z | TACT SWITCH | CH - |
| S4705 | QSW0707-001Z | TACT SWITCH | MENU |
| △ S4901 | QSP4K21-C01 | PUSH SWITCH | POWER |

REMOTE CONTROL UNIT PARTS LIST (RM-C765-1A)

| △ Ref.No. | Part No. | Part Name | Description |
|-----------|-----------------|---------------|-------------|
| | 163RRC-049-01AR | BATTERY COVER | |

PACKING



PACKING PARTS LIST

| △ Ref.No. | Part No. | Part Name | Description |
|-----------|----------------|--------------|--------------|
| 1 | LC10181-019A-A | PACKING CASE | 4pcs in 1set |
| 2 | LC10083-004B-A | CUSHION ASSY | |
| 3 | CP30055-001-A | TOP COVER | |
| 4 | CP30056-008-A | POLY BAG | |
| 5 | QPA02503505 | POLY BAG | 2pcs in 1set |
| 6 | RM-C765-1A | REMOCON UNIT | |
| △ 7 | LCT0824-001A-A | INST BOOK | |
| 8 | CM36616-001-A | CORNER LABEL | |



JVC

VICTOR COMPANY OF JAPAN, LIMITED

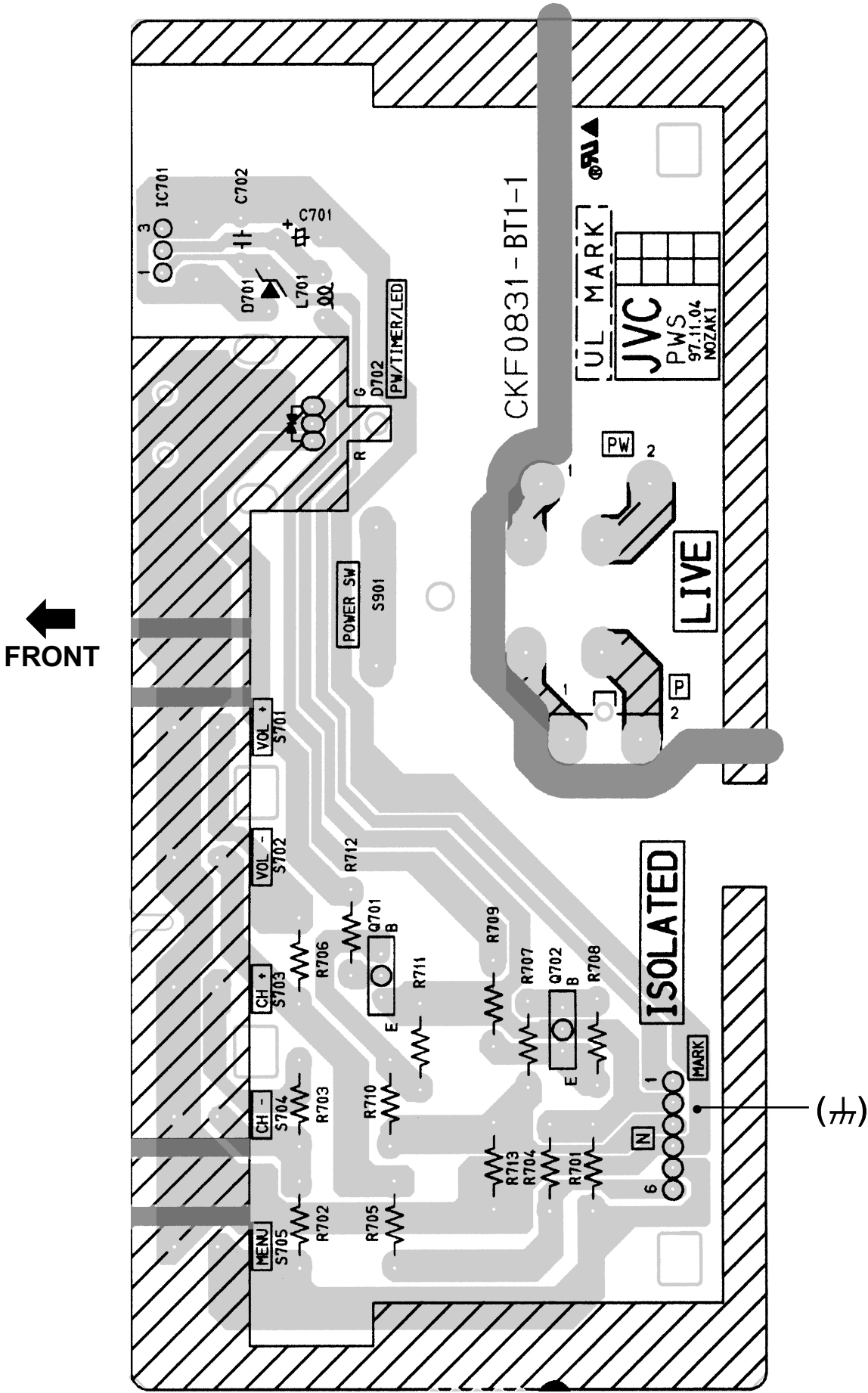
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AV29M201-NAM #4



Printed in Japan
VP 0005
DP4053

FRONT CONTROL PWB PATTERN



AV-29M201 STANDARD CIRCUIT DIAGRAM

NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- (1)Input signal : Colour bar signal
 - (2)Setting positions of each knob/button and variable resistor :Original setting position when shipped
 - (3)Internal resistance of tester :DC 20k Ω /V
 - (4)Oscilloscope sweeping time :H \Rightarrow 20 μ S/div :V \Rightarrow 5mS/div :Others \Rightarrow Sweeping time is specified
 - (5)Voltage values :All DC voltage values
- * Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board :R1209→R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

- Resistance value :No unit :[Ω] :K :[K Ω] :M :[M Ω]
 - Rated allowable power :No indication :1/10[W] :Others :As specified
 - Type :No indication :Carbon resistor :OMR :Oxide metal film resistor :MFR :Metal film resistor :MPR :Metal plate resistor :UNFR :Uninflammbler resistor :FR :Fusible resistor
- *Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

- Capacitance value :1 or higher :[pF] :less than 1 :[μ F]
 - Withstand voltage :No indication :DC50[V] :Others :DC withstand voltage [V]
- *Electrolytic Capacitors 47/50[Example]:Capacitance value [μ F]/withstand voltage[V]

- Type :No indication :Ceramic capacitor :MY :Mylar capacitor :MM :Metalized mylar capacitor :PP :Polypropylene capacitor :MPP :Metalized polypropylene capacitor :MF :Metalized film capacitor :TF :Thin film capacitor :BP :Bipolar electrolytic capacitor :TAN :Tantalum capacitor
- (3)Coils :No unit :[μ H] :Others :As specified

(4)Power Supply

- :B1
- :9V
- :5V

*Respective voltage values are indicated

(5)Test point

- :Test point
- :Only test point display

(6)Connecting method

- :Connector
- :Wrapping or soldering
- :Receptacle

(7)Ground symbol

- :LIVE side ground
- :ISOLATED(NEUTRAL) side ground
- :EARTH ground
- :DIGITAL ground

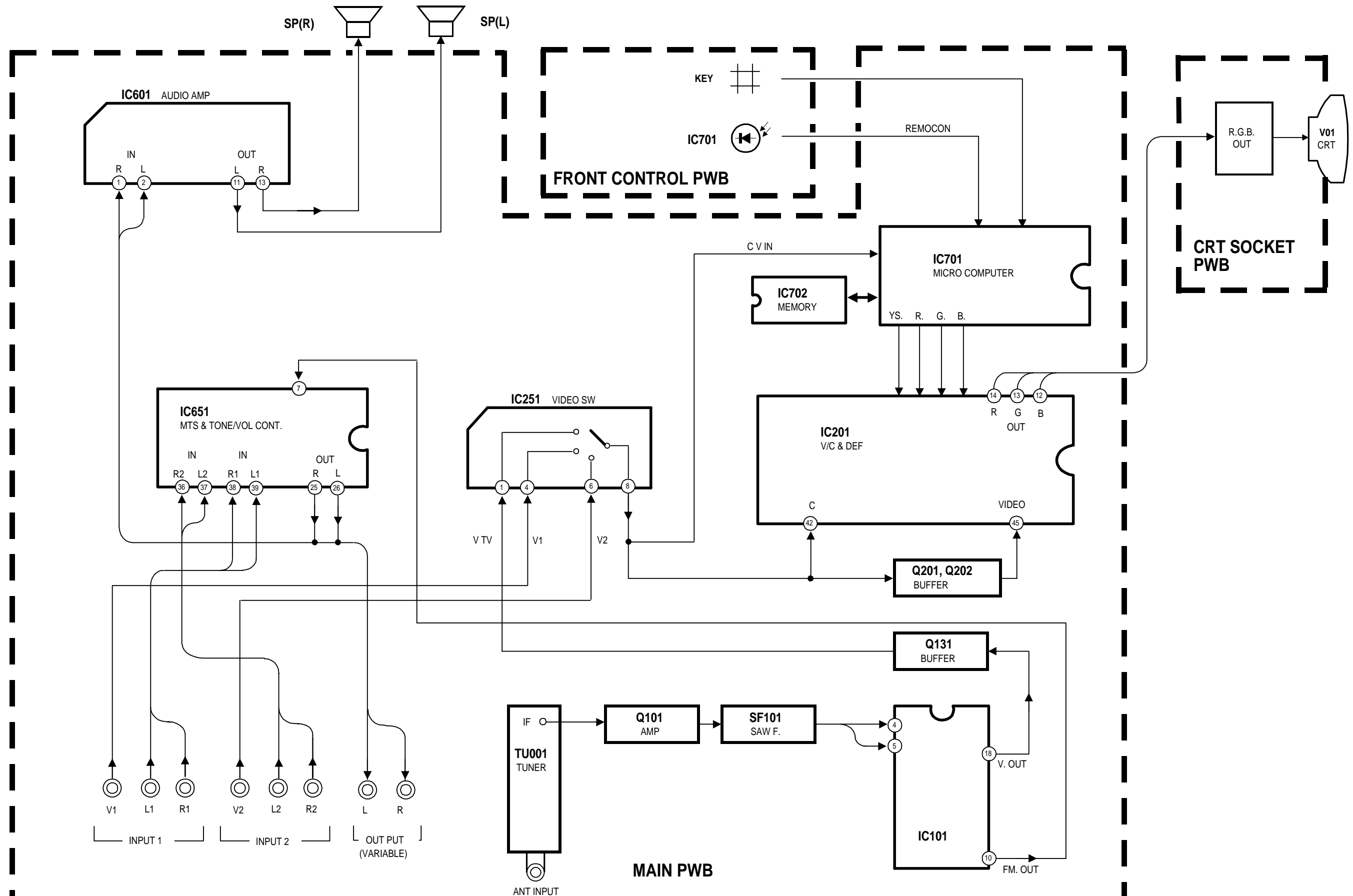
5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : () side GND and the ISOLATED(NEUTRAL) : () side GND. Therefore, care must be taken for the following points.

- (1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

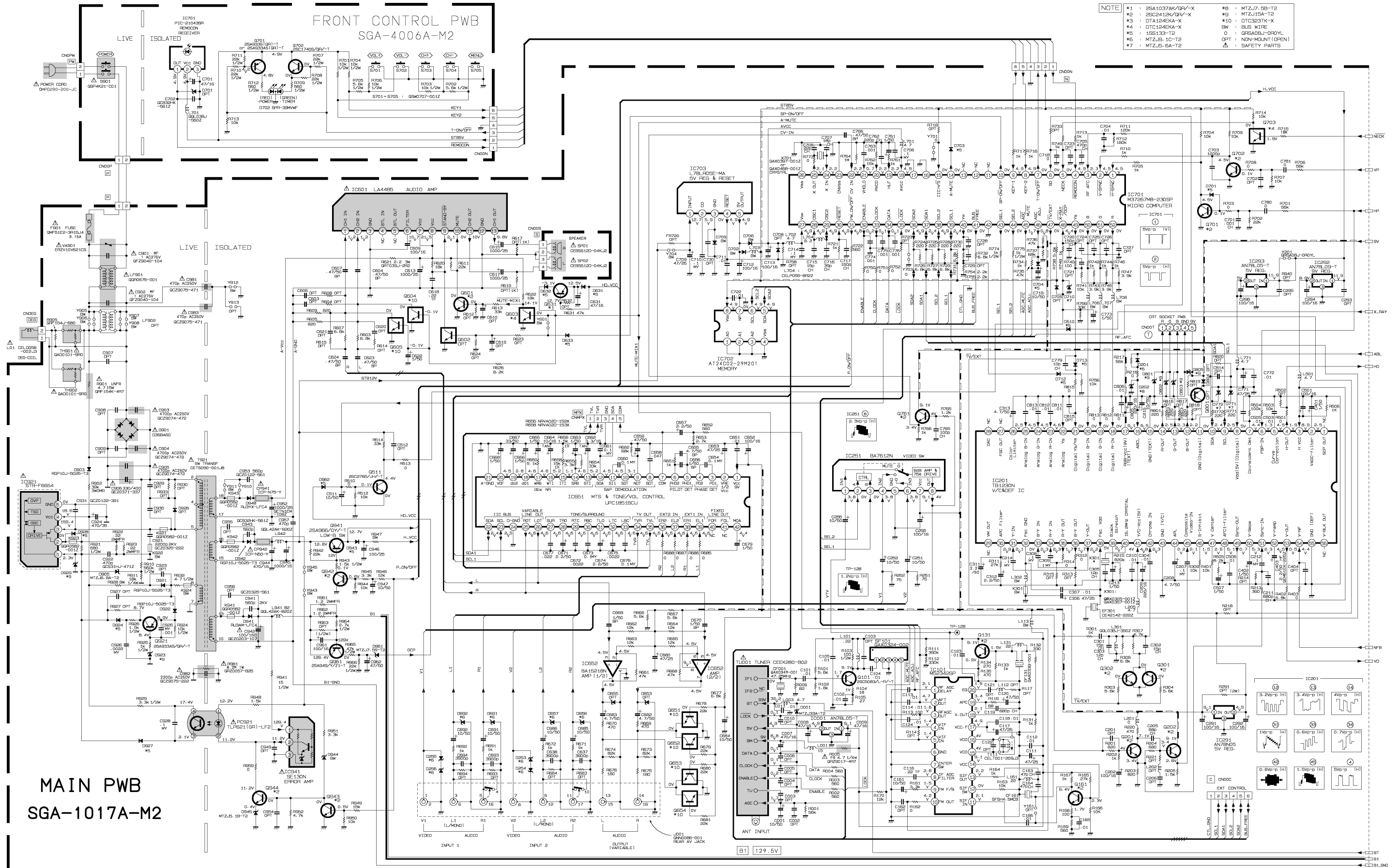
◇ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

BLOCK DIAGRAM

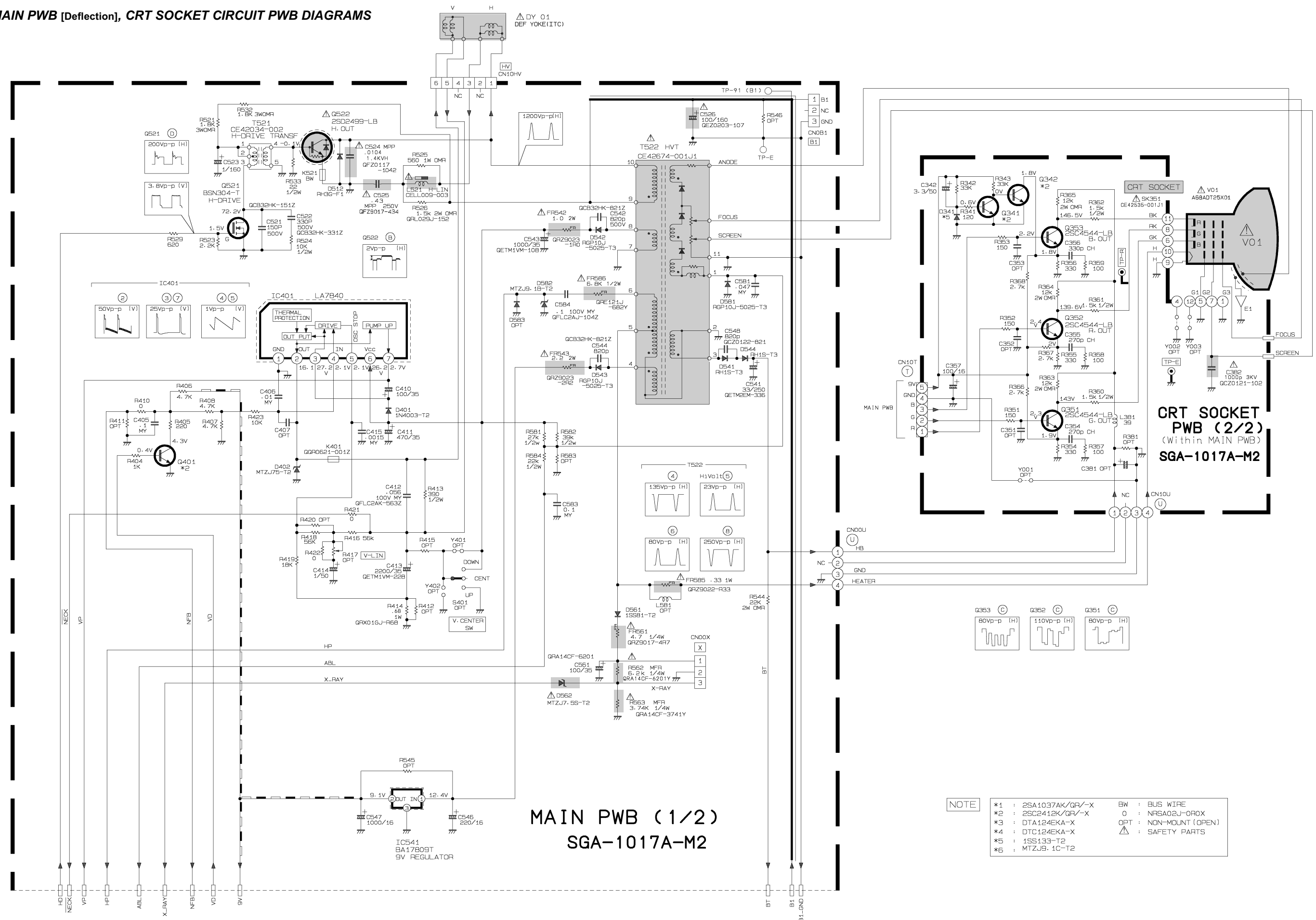


CIRCUIT DIAGRAMS

MAIN PWB [Power, signal & Microcomputer circuit], FRONT CONTROL PWB CIRCUIT DIAGRAMS



MAIN PWB [Deflection], CRT SOCKET CIRCUIT PWB DIAGRAMS



PATTERN DIAGRAMS MAIN PWB PATTERN

↓ FRONT

(∇) TP-E B1(TP-91)

